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ABSTRACT

Developed to inform teachers and students of the importance of transferable skills in their daily lives, this teacher's guide contains activities for practice in applying transferable skills in the areas of problem solving, communication, computation, and relationships with others. The activities in the guide are intended for use on either the secondary or postsecondary level and can easily be adapted to match the subject matter being taught. Covered in the individual sections of the guide are the following topics: making school meaningful through transferable skills (making school meaningful, life and change, what recent studies say, and dealing with change); about transferable skills (the definition of transferable skills, the transfer process, the importance of transferable skills, and differences between transfer and transferable skills); guidelines for encouraging transfer (simulations among transfer situations, techniques for problem solving, and identifying important parts of a task); activities for encouraging transfer (getting started, related filmstrip and tape programs, individual activities for encouraging transfer, and an index of the activities); and identifying transferable skills (skill lists and techniques for assessing transferable skills). Concluding the guide is an annotated list of resources on transferable skills and the transfer process. A list of transferable skills is appended, and an audiocassette script is included. (MN)

Research and Development Series No. 216

TEACHER'S GUIDE TO TRANSFERABLE SKILLS

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Robert E. Abram

Barbara Covert

Kate Kitchen

Illustrated
by
Barbara Shea

The National Center for Research in Vocational Education
The Ohio State University
1960 Kenny Road
Columbus, Ohio 43210

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For further information contact:

The Program Information Office
The National Center for Research in Vocational Education
The Ohio State University
1960 Kenny Road
Columbus, Ohio 43210

Telephone: (614) 486-3655 or (800) 848-4815
Cable: CTVOCEDOSU/Columbus, Ohio

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FOREWORD

The educational implications of transferable skills are significant at all age ranges and grade levels. Research conducted at the National Center for Research in Vocational Education indicates that what is presently known about transferable skills should be made available to teachers, counselors, and others who work with students on a daily basis.

The Teacher's Guide was developed to inform teachers and students of the importance of transferable skills in their daily lives, particularly in contexts outside of the classroom. It is designed to help you help your students to become more adaptable and flexible, particularly in the world of work. It stresses application and provides activities for practice in applying transferable skills in the important areas of problem solving, communication, computation, and relationships with others.

The Guide was designed to be used in secondary and postsecondary schools and classroom activities were developed for students at these levels. Most of these practice activities can be used in all subject areas. The focus of individual activities can be easily adapted to match the subject being taught.

The Teacher's Guide can be used in a number of different ways. It can help you in simply making your students aware of the importance of the skills they are learning by pointing out how they can apply these skills to other areas of their lives. Or, you can use the Guide to develop your students' abilities to develop both the transferable skills they will need in the world of work and the abilities to apply these skills in other situations. The Guide should **not** be used as a unit of instruction, but should be used in conjunction with the subject matter you currently teach.

The National Center is indebted to many individuals for their help in the development of this Guide. Much of the information in the Guide was obtained from products authored by staff and consultants in the Occupational Adaptability and Transferable Skills Program Area at the National Center. Portions of the following products were especially helpful: **Teaching for Transfer, A Perspective** by Nina Selz and William L. Ashley (Information Series No. 141), **Gold Mine** by William L. Ashley, and **Occupational Adaptability and Transferable Skills: A Summary Report of the Project** by Frank C. Pratzner (Information Series No. 129).

Insightful reviews of the draft were provided by Richard Miguel and Cathy King-Fitch, National Center; Darlene Haring, Scottsdale Public Schools, Scottsdale, Arizona; Nancy Eberhart, Ohio Department of Education, Columbus, Ohio; Jesus Rubio, College of the Mainland, Texas City, Texas. Tone and style of the Guide were suggested by Joan Jones, National Center. Many useful ideas for classroom activities were developed by James O'Connor, Newark Public Schools, Newark, Ohio; JoAnn Hayden, Galloway, Ohio; and Susan Benicasa, Zanesville Public Schools, Zanesville, Ohio.

Finally, we would like to thank the project's technical panel, Robert Stump, Project Officer of the National Institute of Education, and William L. Ashley, Program Director of the Occupational Adaptability and Transferable Skills Program Area for their sustained assistance throughout the development of the Guide.

Robert E. Taylor
Executive Director
The National Center for Research
in Vocational Education

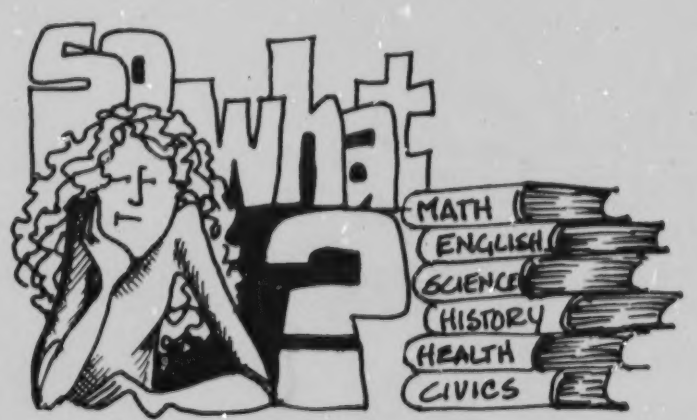
1. Making School Meaningful: Transferable Skills

- Making School Meaningful
- Your Life and Change
- What Recent Studies Say
- Dealing with Change

Making School Meaningful: Transferable Skills

Part of your job as a teacher has always been to make school meaningful in the context of an individual's life and occupational roles . . . just as part of your job has always been to teach basic skills or vocationally useful skills.

Often, in spite of your efforts and frequent successes, many students will say, "so what?"



So . . . what can help?

Maybe this guide can help focus your thinking about these things:

- ☑ How to develop students' skills to communicate, compute, interact, and solve problems
- ☑ How to relate the skills learned in the classroom to their uses in life and work
- ☑ How to facilitate the transfer of what students are learning right now to future applications

- ☑ How to increase students' awareness of the transferability of their skills
- ☑ How to increase students' flexibility and mobility to succeed in life and occupational roles by developing skills for making role changes more effectively
- ☑ How to encourage students to become self-sufficient, productive members of a community through the ability to transfer skills

Your Life and Change

Change has become a significant part of just about anyone's life. One of the areas of our lives most profoundly affected by change is the world of work. Consider your own professional career:

Are you still teaching in the same way, in the same community as you did a few years ago?

In how many different schools and classrooms have you taught?

Have you thought about going back to school for an advanced degree in education or some other discipline?

Have you considered a job other than teaching?

The answers to all of these questions involve adapting to change. Not only are jobs changing, but people like you are changing jobs. Occupational mobility is becoming the rule for many people in the American labor force. Think about your life:

How have you adapted to change?

Since starting full-time work, how many different jobs have you held?

What skills or competencies do you think have been useful to you over the years in the greatest variety of life and work situations?

If you were to think about changing careers, what skills do you have as a teacher that will transfer to your next job? Are they communication skills? interpersonal skills? computational skills? problem-solving skills?

When you were a student, were you aware of how important these skills would be to you when you began seeking a job or thought about changing jobs?

As you know by now, those who learn to become adaptable acquire skills that enable them to survive, cope, and flourish in the midst of change. These important skills are called transferable skills. They are most often thought of as general skills and characteristics useful in a wide range of settings or different circumstances.

Recent Studies* Suggest That . . .

- ☑ Many people in the American labor force change jobs, and some do so frequently. One study reported that between a quarter and a third of the work force changed occupations in a five-year period.

- ☑ One set of occupational skills does not last a lifetime. Individuals at any age should prepare not only for a job but for job changes within careers and the possibility of career changes.

- ☑ All skills are potentially transferable. Teaching for the transfer of skills can be of paramount importance in future life roles of students.

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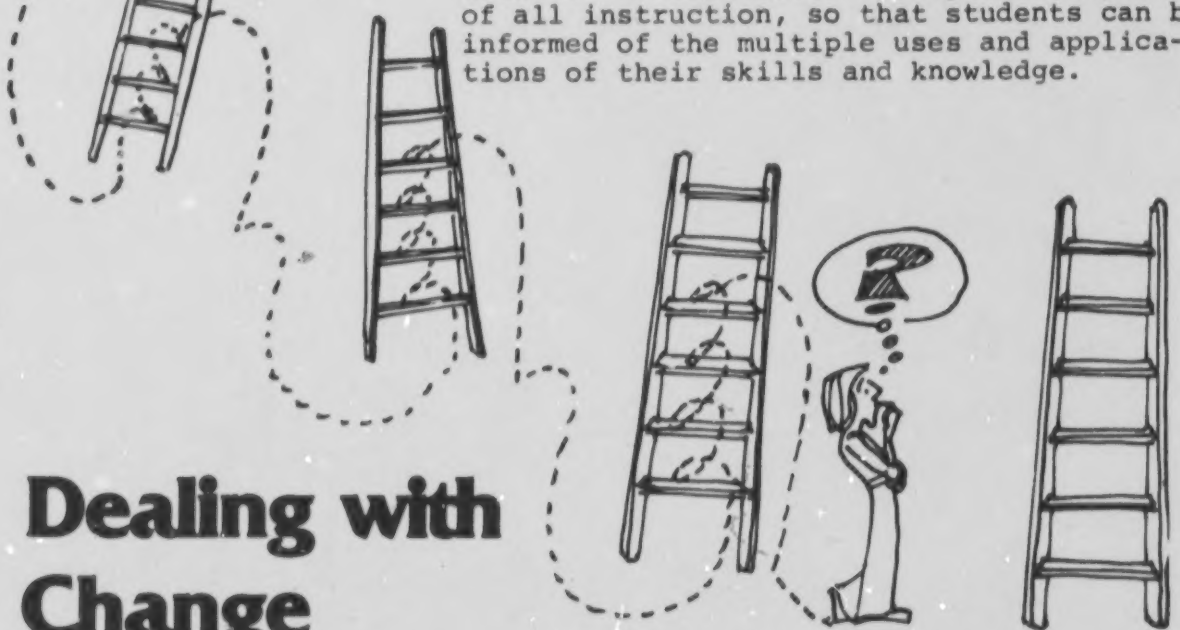
* See References for list of studies and reports.

- [x] Youth leaving school and entering the labor force need to transfer skills and knowledges from the classroom to entry level employment.

- [x] Although schools cannot prepare students for all unknown future contingencies, school can help students identify and develop their individual attributes, potentials, or capacities for application in a wide range of situations. By such development, students can be more adaptable and better able to perform successfully in changing environments.

- [x] Schools should provide students with opportunities to practice the application of skills and knowledge under a wide variety of conditions and circumstances. Schools should make transfer a deliverate and explicit objective of all instruction, so that students can be informed of the multiple uses and applications of their skills and knowledge.



Dealing with Change

Just as change will inevitably affect your life, so will change affect the lives of your students -- perhaps even more so. Certainly occupational change appears to be occurring at an accelerated pace. Your students may not be aware that they will change jobs several times throughout their lives. Making them aware of occupational change and the requirements for being adaptable will assist them in preparing now for such changes. One way to cope with occupational change is through the development of transferable skills.

That's what this guide is all about. It is designed to help you help your students become more adaptable and versatile -- better able to cope with changes associated with their jobs and careers. We invite you to use this guide with your students.

This guide will assist you in . . .

- understanding the basic concepts of transferable skills
- identifying the skills and knowledge for transfer
- planning activities for your students that will provide practice in transfering skills
- getting your students actively involved in learning to transfer

2. About Transferable Skills

- What are Transferable Skills?
- What is the Transfer Process?
- Why are Transferable Skills Important?
- What is the Difference Between Transfer and Transferable Skills?

What are Transferable Skills?

The idea of skills having potential for application in more than one situation is not new. Most teachers are aware of this and some make a conscious effort to teach for transfer. Others, however, teach concepts or operations without reference to a context for application. Transferable skills are skills and abilities that a person can carry from one kind of task or job to another. Transferable skills fall into such categories as communication skills, interpersonal skills, reasoning and problem-solving skills, planning and decision-making skills, mathematics skills, and manipulative skills.

Having a good range of such kinds of skills can make a person more adaptable in various roles. For instance, a person who has developed the highly transferable skill of speaking persuasively may find that ability useful in a variety of employment situations, such as salesperson, guidance counselor, public relations person, educator, entertainer, and so on. Another person highly proficient in the transferable skill of managing money could apply it in such diverse occupations as rancher, educator, manager, buyer, production designer, construction worker, and others.

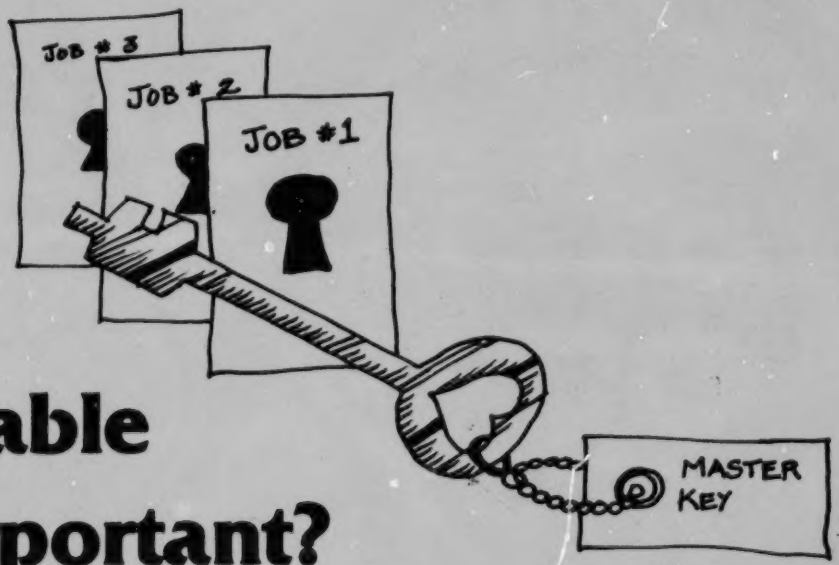
What is the Transfer Process?

In simple terms, to transfer something--a skill or bit of knowledge--is to take what was learned in one setting and apply it to another setting. It means, for example, applying writing and listening skills developed in the classroom to the job-hunting tasks of writing for information about a position and listening to a supervisor's description of what duties and responsibilities the position entails. You probably have been concerned at various times with whether your students really understood the things you were teaching them--whether they understood those things well enough to use or apply them in situations outside the classroom. Your concern about application is what transfer is all about.

There are several assumptions underlying the concept of transfer. The first is that something has been learned and retained in memory. The second assumption is that what was learned (i.e., knowledge and/or skill) is transferable. And finally, there must be opportunities to apply elsewhere what was learned. Recognition and application of the transfer process can take place in the classroom. Teaching for transfer is, in fact, the purpose of this guide.

Let's look at some examples of the most common types of transfer presently occurring in schools. A student learns about angles and basic calculation and then advances to an understanding and application of the Pythagorean theorum. Another student learns to analyze the main idea of a written passage, and later applies this skill in writing book reports. These students are using transfer skills by applying what was learned in one class to the next level of knowledge--possibly in a more advanced class. Through this transfer process, students gain knowledge and skills and move to a higher level. This type of transfer receives the most emphasis in school.

Certainly, it is important for students to use this transfer process as they advance in school. But additionally, they will leave school one day. What has been learned in school must then be transferred to work and other life performance situations.

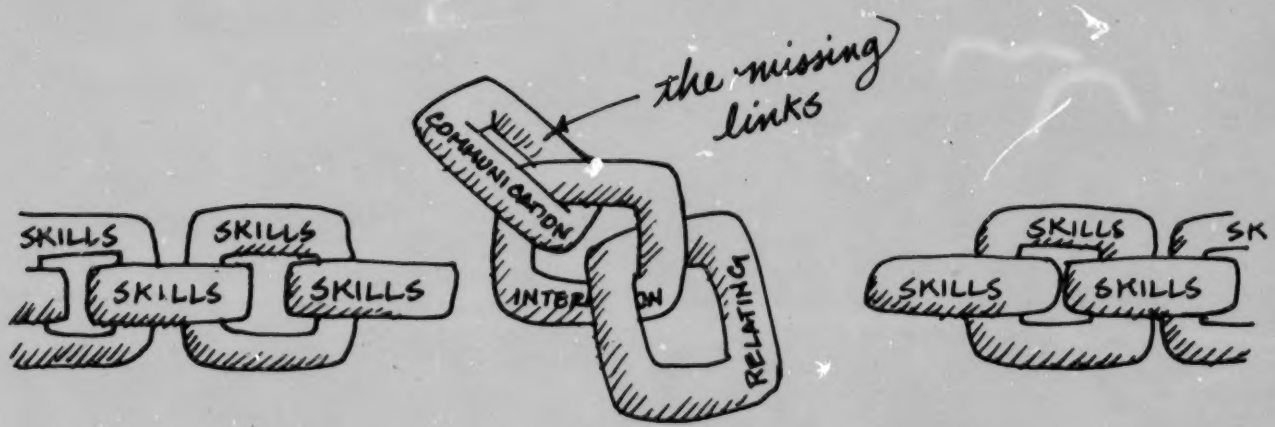


Why are Transferable Skills Important?

The advantage of having highly transferable skills is that they enable someone to fit into many kinds of jobs and cut down significantly on the need for retraining. Another advantage is that knowing one has highly transferable skills expands a person's perceptions of control over life and work environments. Not only can workers deal more effectively with the currently inefficient system of matching people with jobs, they have some tools with which to begin to change the system--at least as it affects their lives.

Many people today feel that schools are not doing their job properly. Employers in business and industry say that the schools give them applicants who cannot read or write and who do not have attitudes conducive to working with others. Some may suggest that perhaps the transferable skills sought by employers--for example, the abilities to communicate, compute, interact, and relate--are not successfully imparted to students in school settings.

There may, in fact, be nothing wrong with what is being taught, except that it is not being taught for future application outside the classroom--at work, at home, and in the community. Students do not receive enough practice in learning how to apply their skills and knowledge from one situation to another, even from classroom to classroom.



We expect learning to affect future behavior. We expect learning to be built upon if students are to acquire new skills, graduate, and go to work. A very important instructional step should be that of teaching how to apply and to use previous learning appropriately in a new situation. It is highly beneficial for students to learn important transferable skills and also to develop the ability to apply them in different situations. Then students will have learned how to transfer skills in a variety of different situations.

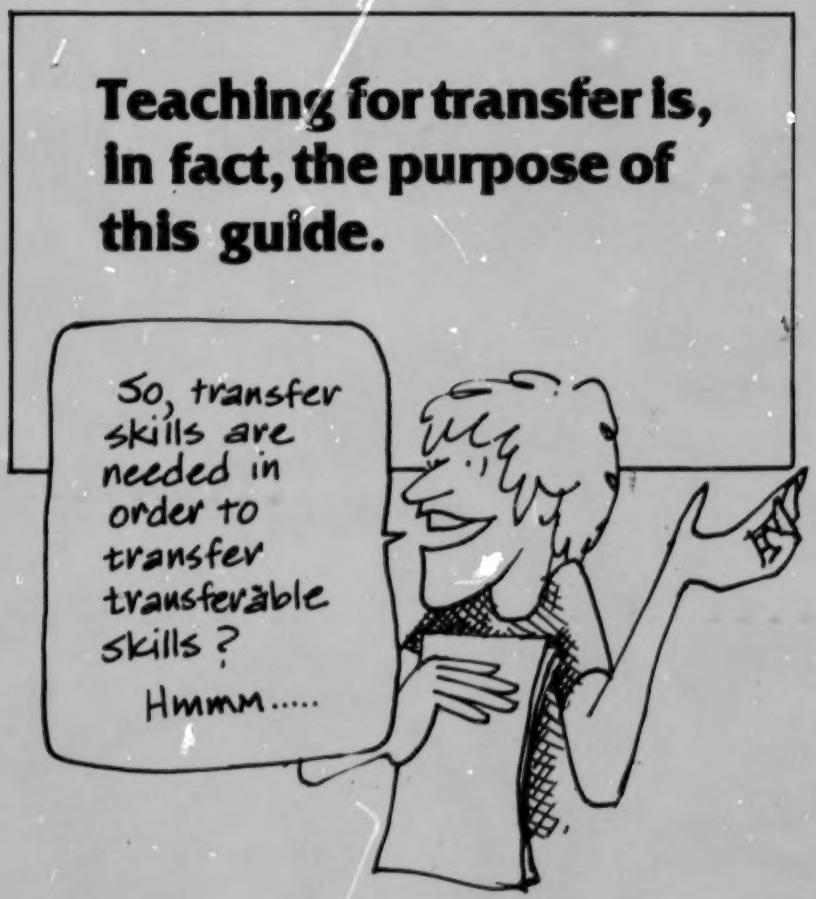
What is the Difference Between Transfer and Transferable Skills?

Transfer Skills

Transfer skills involve the learner's ability to carry out the process of transferring specific knowledge or skills. A list of transfer skills might include items such as reasoning by analogy, rule application, cue recognition, association, and others. These are abilities that an individual can use to transfer something learned in one setting to another setting. Most of the examples used in this guide so far refer to transferring or applying what was learned in school to occupational and other life settings outside the school.

Transferable Skills

Transferable skills, on the other hand, are the payload of transfer--the cargo of skills and knowledge that are transferred from one setting to another. They are the computation and communication skills, for example, that are transferred from school to work or to the community or to the home. Several lists of transferable skills can be found in the Appendix.


Teaching for transfer is, in fact, the purpose of this guide.
So, transfer skills are needed in order to transfer transferable skills?
Hmmm.....

3. Guidelines for Encouraging Transfer

- The Similarity Between Transfer Situations
- Techniques of Problem Solving
- Identifying Important Parts of a Task
- Plenty of Practice

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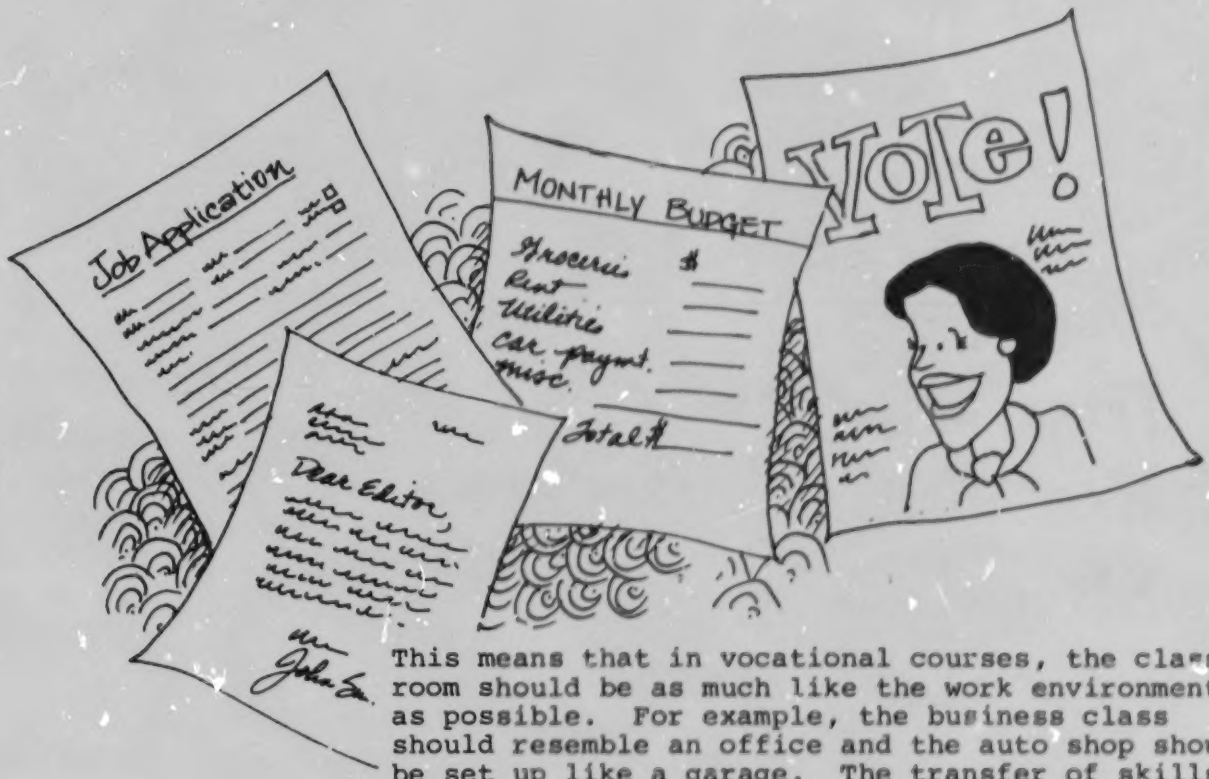
This section of the guide presents guidelines for designing classroom activities to encourage the application of skills.* The principles upon which the guidelines are based were derived from learning theory and have appeared in the writings of leading educators for many years. Read each guideline and accompanying discussion so that the activities for encouraging transfer, described in the next section, will make sense.

The Similarity Between Transfer Situations

Make the situations discussed and the activities conducted in the classroom as similar as possible to those that students encounter outside it. This will help to bridge the gap between the familiar and the unfamiliar, allowing students to generalize what they have learned in the familiar environment of the classroom and apply it to less familiar settings outside the classroom.

*Portions of this section on Guidelines were synthesized from Biehler, Robert F., *Teaching for Transfer* (Chapter 9). In *Psychology Applied to Teaching*. Third Edition, Boston: Houghton Mifflin Company, 1978.



This means that in vocational courses, the classroom should be as much like the work environment as possible. For example, the business class should resemble an office and the auto shop should be set up like a garage. The transfer of skills associated with the general academic courses of language arts and computation can be encouraged through activities such as the following:

- Situations where persuading others is a critical outcome, as for example, interviewing for a job
- Exercises that represent real-life activities involving computation, as for example, constructing a budget for personal income
- Simulations for elections to teach students how to function as voting citizens
- Problem-solving situations
- Writing letters to the editor, potential employers, chamber of commerce; writing personal letters and diaries

Actual activities would differ from class to class depending on the ages of the students, their backgrounds and interests. The important point is that students recognize the relevance of classroom learning to many life and occupational roles.

Techniques of Problem Solving

Problem solving represents one of the highest forms of learning. Since problems exist in all life and occupational roles, everything possible should be done to encourage students to function as independent problem solvers. Solving problems can be viewed as an application of the scientific method. Thus, teaching problem-solving may be approached as an exercise in the scientific method and presented as a series of steps in gathering and analyzing information. One approach that can be applied to any situation is the following:

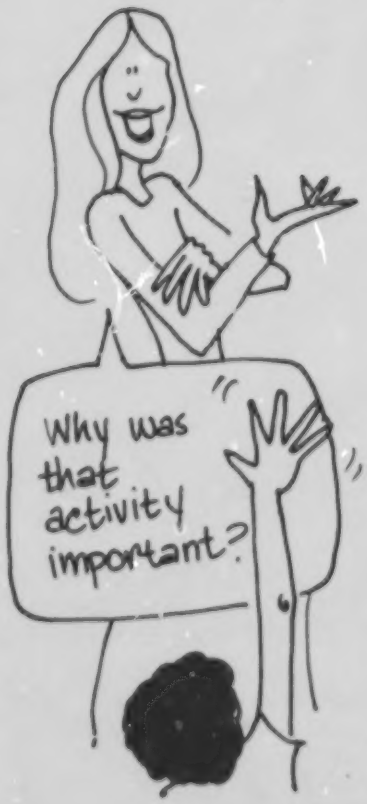
An Approach to Solving Problems

- **Understanding the problem** - What caused the problem? Who or what is involved? How long has it existed? What have others tried to do about it?
- **Devising a plan** - What should be considered in the plan (time, cost, probability of success)? Which one appears to be the best in view of all the factors involved?
- **Carrying out the plan** - Who should do what? What help is needed?
- **Evaluating the plan** - What information will tell you how the plan works? How long will the plan take to work?

Identifying Important Parts of a Task

As you proceed through various activities to encourage transfer, it is important that your students recognize the application of knowledge or a skill previously learned in the classroom. Pointing out or identifying the important features of a task helps the student to recognize those operations or skills which appear over and over again in other situations. By identifying important features of a task, you are, in effect, reinforcing that recognition.

When participating in various activities to encourage transfer, point out the similarity between the present application of a skill and its application in the original learning situation. Make certain students recognize that they have applied something they learned--that this is likely to occur in other situations and thus that the skill or knowledge is important.



Have students tell you why the activity they have just completed is important. Guide their thinking so that they realize on their own the importance of classroom learning in their experiences outside the classroom. Have them suggest other applications and other activities for practicing skill transfer. Allow them to generate enthusiasm for applying what they have learned.

Since activities for problem solving lend themselves to group as well as individual activities, students can participate as teams in various community settings or become involved in individualized assignments. Some examples of problem-solving situations include family relationships such as divorce and sibling rivarly; neighborhood concerns such as noise, traffic, and cleanliness; and social concerns such as teenage pregnancy, drug abuse, and teenage suicide.

Plenty of Practice

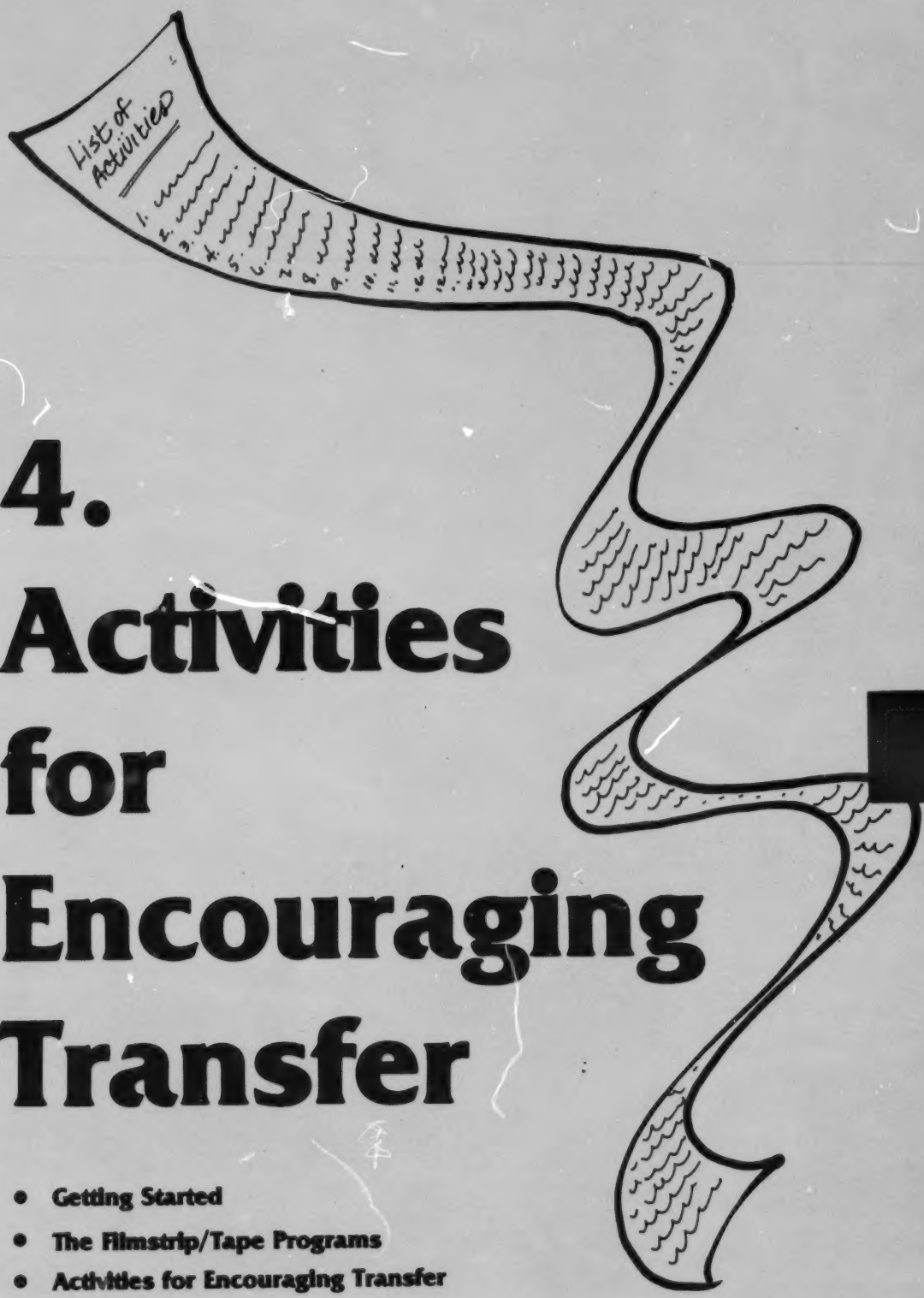
Students cannot transfer what they have not learned. Thus it is important to teach for mastery. In any subject, initial learning standards should be set within the achievement capability of each student. As students succeed, the standard may be raised to a higher level to encourage continuous improvement.

It is helpful to provide guidance during the mastery period so that what is learned is learned correctly. This involves prompting students, correcting misapplications and mistakes, and providing positive reinforcement for improved performance. In order to encourage transfer, it is recommended that students be given guidance in practicing the same skill in a variety of performance situations. For example, writing skills are required in most school subjects. Students preparing book reports, themes, and other written assignments should receive guidance in the quality as well as the substance of their assignments from teachers of history, social studies, vocational subjects, and other classes where writing style is not usually taught. Students may also need assistance in writing letters to friends, classified ads for newspapers, and letters of application for jobs.

Practice, Practice, Practice, Practice!

Practice in the form of repetition and drill may be useful during initial stages of learning; however, it is important to keep in mind that repetition and drill will also encourage a fixed response or learning set. To discourage this from happening, techniques should be used that prevent students from using concepts and skills mechanically. To use logic but to use it flexibly, incorporate exercises that force them to adopt new points of view. This may be accomplished by introducing disturbing data, permitting students to make mistakes, and switching the subject matter so that students will have to change a point of view they had taken just previously. Also, as mentioned earlier, practice can be diversified by requiring different kinds of thinking and different formats (categorization, matching and labeling, multiple choice, puzzles, etc.).

The next section of this guide provides examples of classroom activities for students to practice the application of skills. These activities were designed from the guidelines presented in this section. They are meant to be integrated with existing classes and subject matter, not used as separate units of instruction. Keep in mind that Section 4 is not a curriculum plan.



4. Activities for Encouraging Transfer

- Getting Started
- The Filmstrip/Tape Programs
- Activities for Encouraging Transfer
- Index of Activities

Getting Started

Ask Students About Their Experiences

To introduce the topic of transferable skills to your students, you might begin by relating your experiences in adapting to important changes in your life and the skills you used to cope with such changes. The changes might have been associated with different jobs or perhaps with requirements to adapt to unexpected events in the home or community. Ask students to tell you about <u>their</u> experiences during part-time jobs, family life, and recreational and social activities in which <u>they</u> had to cope with unfamiliar or unexpected demands on their background of skills and knowledge. Ask them the following questions:

Were you able to cope?

Were you flexible?

Could you adapt?

What did you do?

What would you like to have done?

If you acted successfully, what skills did you use?

Where did you learn such skills?

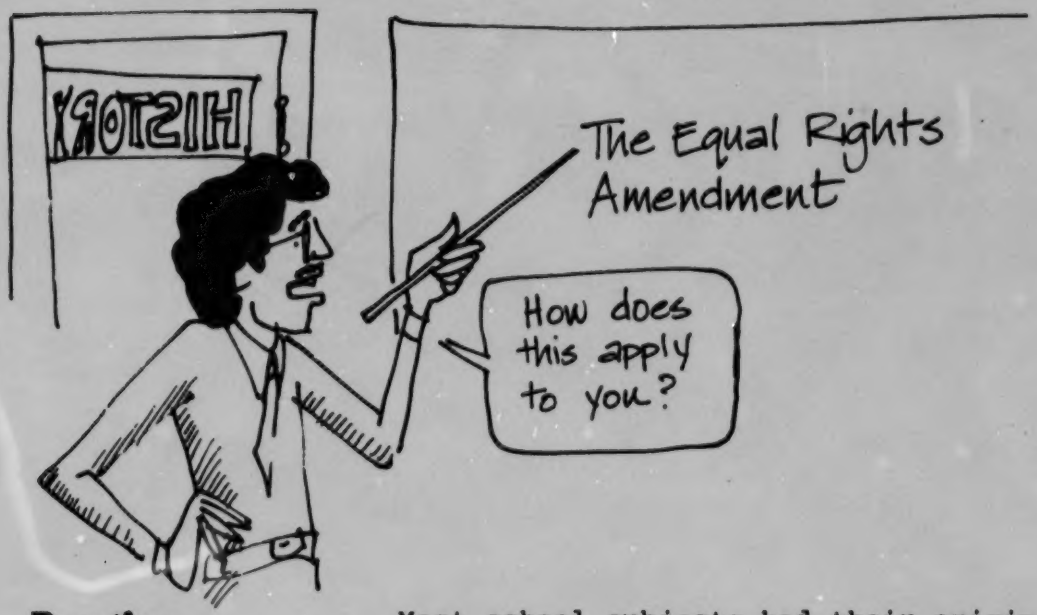
These questions will help introduce the concept of transferable skills to your students and underline its importance in their lives. The next few pages explain how you can encourage an awareness of transferable skills in your students during activities associated with exams, routine classroom tasks, peer interaction, and homework assignments.

You can make your students aware of the importance of skills and knowledge you are teaching by simply offering examples and having them cite situations in their own lives in which they are likely to use those skills and knowledge. You may already be doing this. If you are not doing this, you may want to review the following discussion of four classroom situations with suggestions for guiding students' thinking toward the applied aspects of what they are learning. Of course students are more likely to recognize the importance of transferable skills if they actively practice the application of such skills. It is strongly recommended that the discussions which follow be used in conjunction with the classroom exercises presented later in this section.

Exams

Students generally have a great dislike for tests. One way to deal with this is to discuss with your students the reasons for giving tests. You may want to impress upon them the notion that good tests provide much more than a grade--that tests also show the teacher whether students have learned the material well enough for application or transfer to the next course and, more importantly, to situations they will encounter after they leave school. Encourage the realization that "just getting by" will more than likely result in forgetting what was learned and that transfer or application is then not possible. Explain that teachers need to assess periodically how well their students are doing in order to make the appropriate instructional changes for encouraging mastery learning and

transfer. Testing may sometimes reveal weaknesses which provide both teacher and student with information for turning those weaknesses into strengths for future application. Exam situations need to be directly related to teacher and student goals for learning which are established and shared (i.e., mutually agreed upon) before learning or instruction begins. If students are involved in this way, they are more likely to see the relationship between effort made and achievement realized.



Routine Classroom Tasks

Most school subjects had their origin in practical need. But over time the nature and extent of those needs obscured both the effective development of knowledge and skills and the communication to others of the accomplishments by education programs. School for many students and teachers has become an end in itself, with the relevance of the curriculum not clearly conveyed to the learner. But this need not be the case. Just about every school subject has relevance to life and occupational roles outside the classroom. You can impress upon your students the connection between what they are learning and situations where this learning can be applied. For example, if you are teaching math, you can present situations for application such as budgeting salaries, making purchases, and using credit. If you are teaching language arts, you can point out the critical role of communication in obtaining and maintaining a job, becoming involved in community activities,

and maintaining successful relationships with family and friends. Some of these situations, such as obtaining and maintaining a job, can be demonstrated very effectively through role playing. If you are teaching history, civics, or social studies, you can discuss current political issues, civil rights actions, implications of the passage of the Equal Rights Amendment, desegregation mandates, and other relevant social and political issues. Better yet, have your students suggest relevant topics from the newspaper. Encourage them to think about using your material to deal with current events. As their awareness of the real applications of what they are learning is increased, reinforce the notion that education is more than homework, tests, and grades--that it is also application and transfer to many contexts throughout their lives.

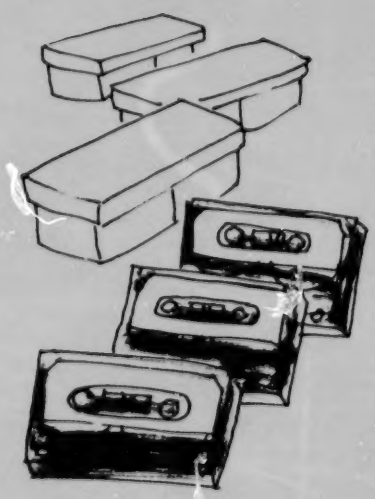
Peer Interaction

There are many situations in and out of school where students must interact with each other to complete assignments or participate in extracurricular activities including peer teaching. During these assignments and activities, you may want to impress upon students that getting along with others will be an important part of most jobs, community activities, and other life roles--that working together during class assignments will give them practice in the skill of getting along with others whose ideas and personalities often differ from their own--that coping successfully with different personalities has been proven to be the most critical factor for many people in getting and keeping a job. During their discussions your students should become more aware of the value of developing positive attitudes and interpersonal skills, and you will want to reinforce their improved behavior when it is demonstrated.

Assignments

Students often complain about homework assignments. When they do, you may want to ask them to speculate about why you are giving them homework. Discuss with them the importance of practice for learning things well so that they will not easily forget them. Point out that the things they learn well can then be applied or transferred to situations at home, at work, and in their communities. Talk about the importance of getting practice in applying what they have learned under new and varying conditions. For example, involve students in structuring practice assignments requiring different kinds of thinking (e.g., literalism, interpretation, application) with different formats (e.g., categorization, matching and labeling, multiple choice, puzzles). Such practice assignments will encourage them to become more flexible in their approach to learning and the application of what they have learned. In short, they will be developing transfer capacity.

The Filmstrip/Tape Programs



Before beginning the activities listed later in this section, you may wish to use the filmstrip/tape programs packaged with this guide to orient your students to the concepts of transferable skills, change, and problem solving techniques.

View the programs listed below and decide how you would like to use them within your own lesson plans.

- Change
- About Transferable Skills
- Problem Solving

Activities for Encouraging Transfer

This section presents a number of activities for encouraging transfer in four skill areas. Research has shown these areas to be among the most important in life and occupational roles. The skill areas are the following:

- **Problem Solving**
- **Interpersonal**
- **Computation**
- **Communication**

Each skill area (except problem solving) is divided into subareas with at least one activity for each. In most instances, each activity includes several variations that you may find more applicable for the students in your class.

The activities and variations were selected to appeal to students of various backgrounds and interests. You are encouraged, nonetheless, to use activities which may be more suitable for the students in your class. One of the best sources for discussion topics and ideas for activities that students can relate to can be the students themselves. Most of the classroom activities presented in this guide can be structured to allow students to present their ideas and preferences so that the experiences in transfering skills and knowledge are internalized rather than viewed as an academic exercise. These activities are not units of instruction, but are intended to encourage the transfer of skills and knowledge you are already teaching.

In a later section of this guide are presented several techniques for identifying transferable skills based on the experiences and perceptions of your students. But for the present, select from among those described in the following section and try some of the classroom activities listed for each skill. Do not limit your choices too much. If you are a math teacher, for example, you may find the communication activities useful in addition to computation activities. You will want the students to keep in mind that when using math on the job, they may also need to use communication, interpersonal, and problem solving skills as well. Think about how you may adapt the activities to relate them to these areas as well as to your subject matter. The activities are not designed to be instructional units, but are meant to be used with instruction in any subject in an ongoing way.

Index of Activities

To assist you in selecting activities for the subject you teach, please refer to the following index.

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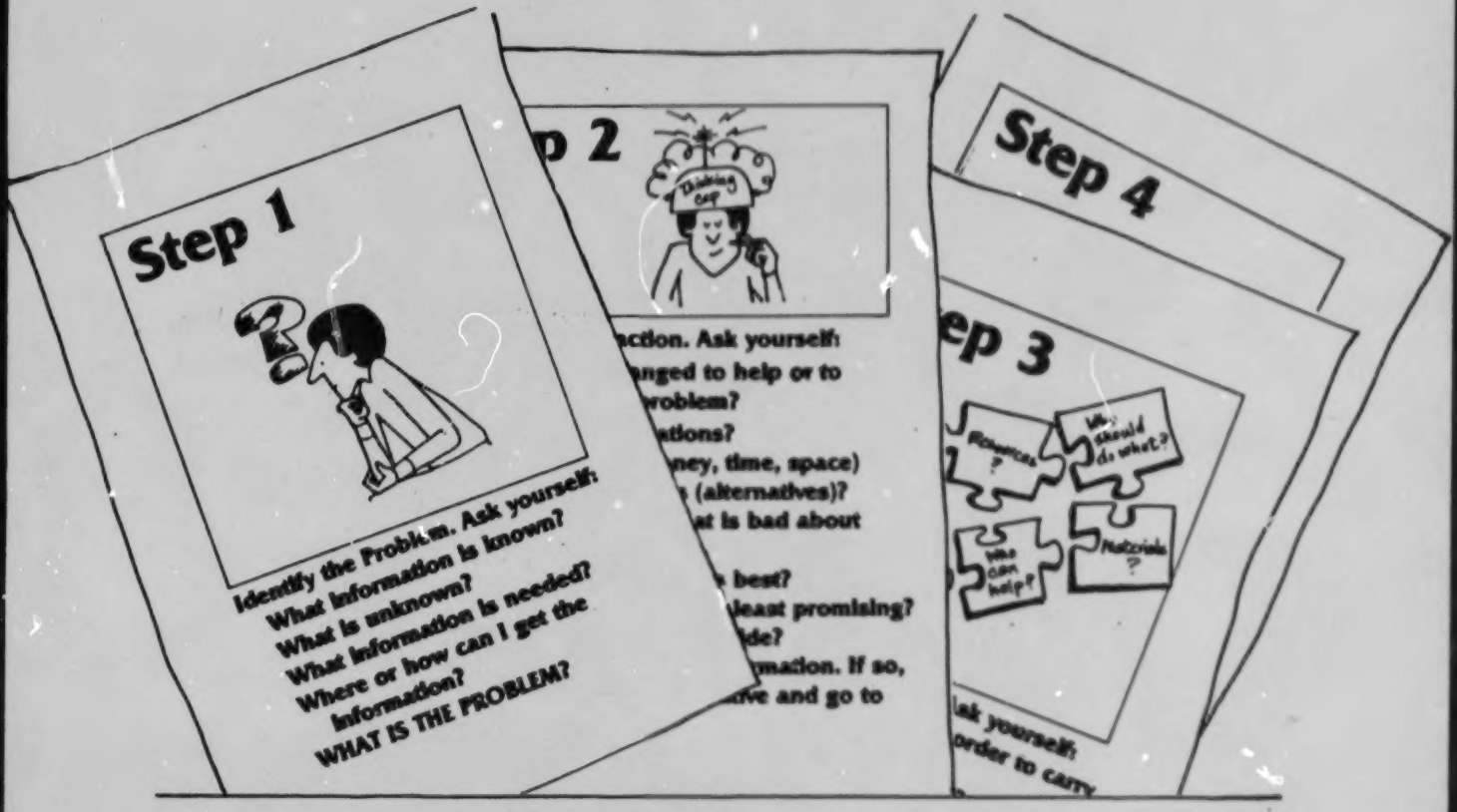
Problem Solving

The scientific method delineates a four step process for solving problems:

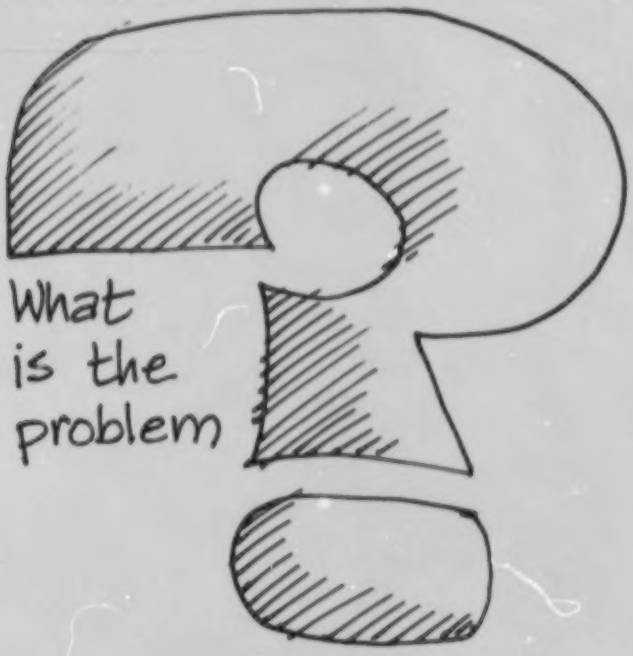
- identify the problem
- devise plans to overcome the problem and select the most feasible
- carry out the plan
- evaluate the plan

These four steps must first be learned and then practiced to ensure mastery. It is recommended that the steps first be practiced sequentially before the overall process can be applied to any problem. Transparency masters for student information are provided at the end of the problem-solving section in this guide (pp 49-57).



The Process

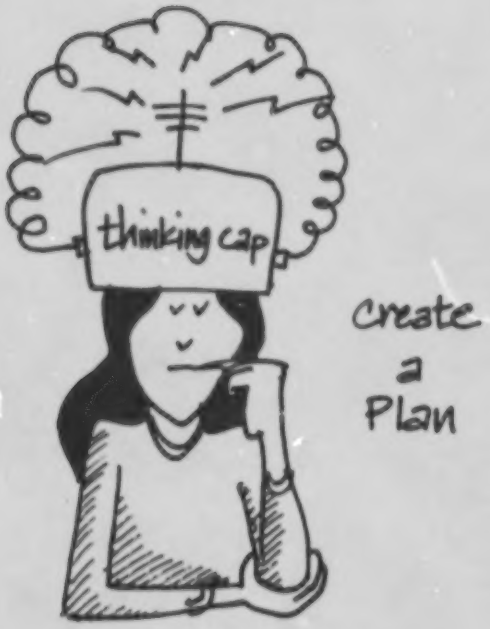
This section presents a four-step process for developing problem-solving skills. Also included are suggestions for identifying real-life problem situations. After reading through each step, select a problem situation from the list of suggestions that follow and have students practice each of the steps. Additional topics for practice are provided in six areas of potential interest to students. Students should be encouraged to identify the problems they wish to explore from experiences in their own lives. The list of topics can serve to stimulate their thinking about certain problem areas in which they may have had experiences.



Step 1. Identify the Problem

This step involves identifying the problem by asking and answering questions:

- What information is known?
- What information is unknown?
- What information is needed?
- Where can the information be obtained?
- How can the information be extracted?
- What *is* the problem?



Step 2. Devise a Plan of Action

This step involves preparing a method of approaching a solution by asking and answering these questions:

- What, if any, changes can be made which will alleviate or eliminate the problem?
- What limitations (economy, time, space, resources, etc.) accompany the alternatives?
- What are the potential advantages and disadvantages of each alternative?
- Which seem to be most promising? Least promising?
- Is there sufficient information on which to make a decision? If not, gather additional data. If so, select the most promising alternative.

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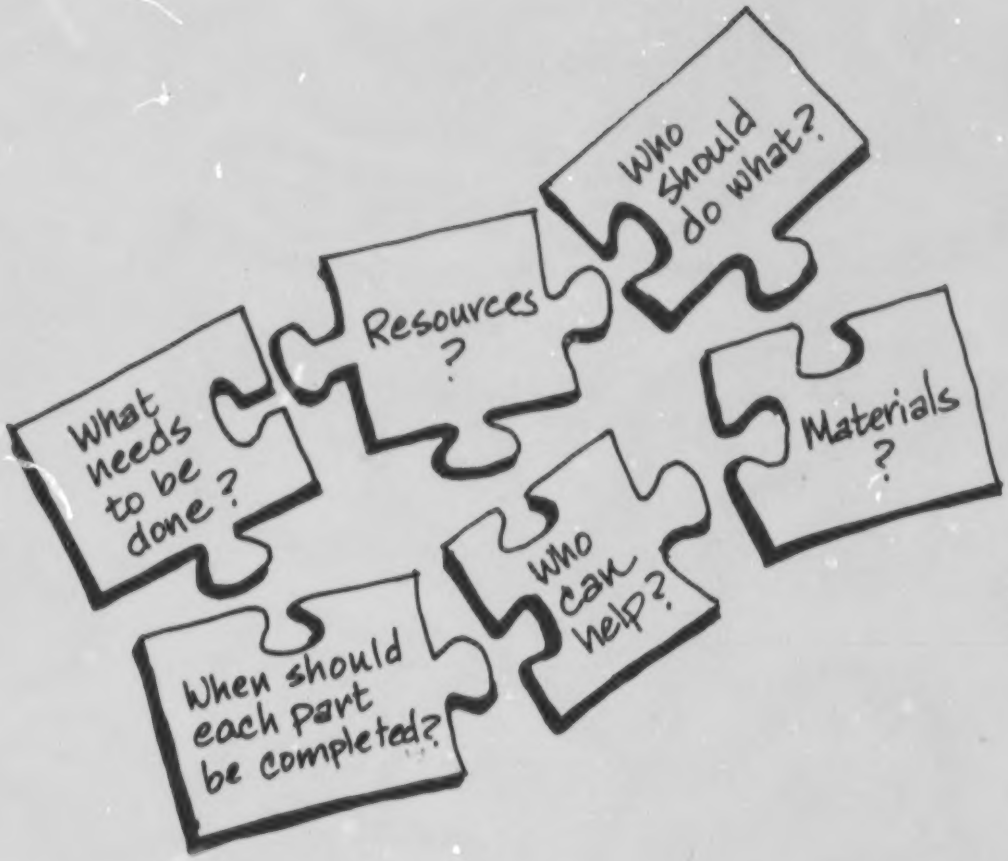
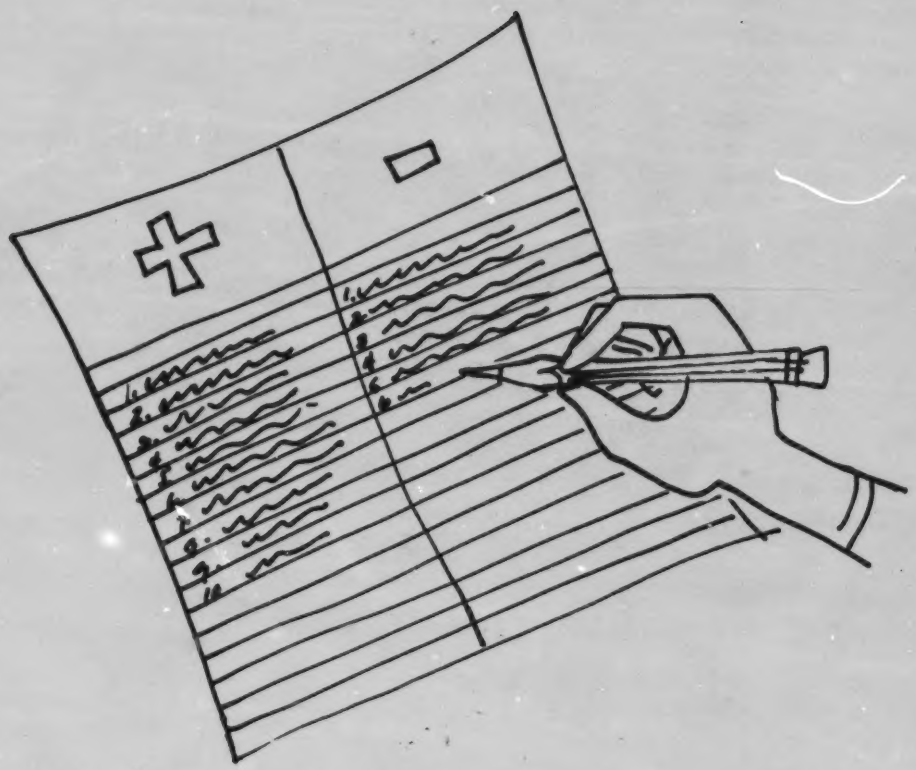


Step 3. Carry Out the Plan

This step involves putting into practice the decisions made in the preceding step. Answer these questions:

- What resources are needed?
- How will responsibilities be delegated?
- When will each step of the plan be completed?



Step 4. Evaluate the Plan

The effectiveness of the plan can be evaluated by answering these questions:

- How will effectiveness (or success) be recognized? What changes are desired?
- Is the result acceptable? Is more improvement desired?
- Should the present plan be continued?
- Should steps 2-4 be repeated because of new information generated from carrying out the plan in step 3?

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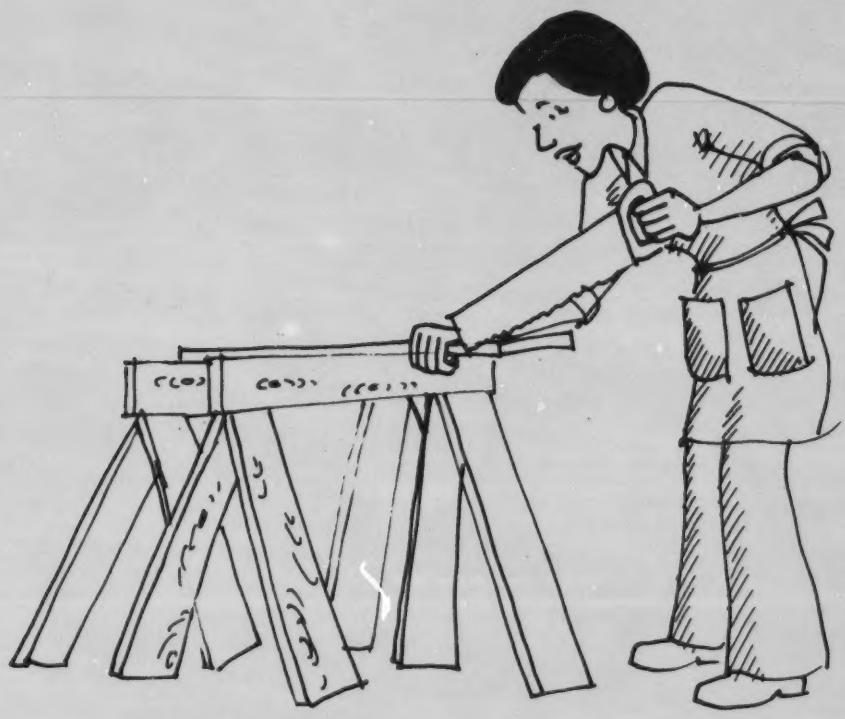
An Example of Problem Solving

Here is an example to share with your class of how one student used this problem solving process.

Susan is a senior in high school. She has decided that she could use extra spending money this year and would like to have some work experience before graduating. This is how she considered her problem of locating an after-school job.



Step 1. Identify the Problem

Susan already knows several things:

1. She has the time and her parents' permission for an after-school and weekend job.
2. She enjoys working outdoors and spent last summer as a junior camp counselor learning beginning carpentry techniques.
3. Susan found out from that job that she likes working at building things and following written/drawn directions.

Susan does not know:

1. What jobs are available.
2. What pay she can expect to receive for the kind of job she wants.
3. How to find out about what kind of jobs are available in the area.

Susan already is aware of some resources:

1. She can talk to her parents and friends to find out what they know about jobs she can do.
2. She can read newspaper ads and listen to a local radio program of job openings.
3. There is a guidance counselor at school with whom she can discuss questions.

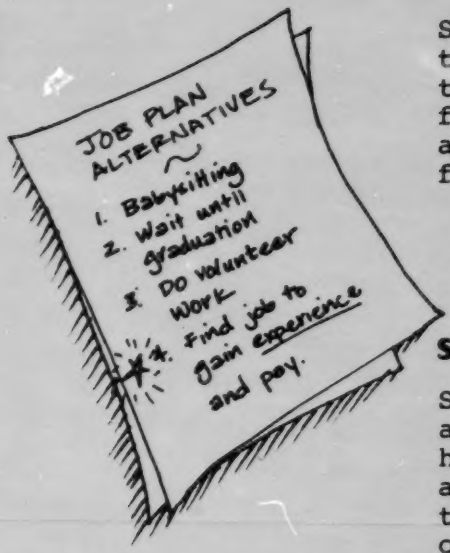
Susan will need to develop a plan to get her questions answered, gain access to the available resources (and any other resources she finds through the ones she already knows about) in order to get closer to her goal of finding an after-school job.

Step 2. Devise a Plan of Action

Susan wants to get more job experience and earn extra spending money. Right now she is babysitting on weekends, but since she has been doing that for the past year she'd like to try something different. She would also like to find a part-time job that is more reliable and pays better.

Susan could wait until graduation to try to find a job or go to college and wait until then to get job experience. But Susan has decided that getting a job now will give her valuable experience for later full-time jobs and will help her try out new skills that might develop into a career.

Susan could do volunteer work as she did last summer, and this could help her gain experience. Susan would rather find a job that gives her experience and pay if she can.



Susan has thought over these alternatives and talked about them with her parents. They agree that these are alternative plans if Susan cannot find the part-time job she wants, but have encouraged her to continue working on her plan of finding an after-school job.

Step 3. Carry Out the Plan

Susan is carrying out her plan of trying to find an after-school and weekend job that will provide her with experience of learning new job skills and earning extra money. She is checking out the resources she already knew about and some new ones she has discovered.

1. Susan has asked her parents and friends if they know of any jobs that might be available. She also talked with her camp counselor from last summer. The counselor offered to write a reference letter for Susan to give to a prospective employer, telling about how hard Susan worked last summer, about how she took on responsibility and did a good job. She'll also list the carpentry skills that Susan learned at camp.

   Susan didn't know what a reference letter was and realizes that this is a good way to let others know what she can do.

2. She has been reading newspaper ads, but has turned up only jobs that require paid work experience or full-time positions. Susan is discouraged for a few days, then remembers that she can talk to her guidance counselor.

   Susan makes an appointment with her guidance counselor, Mr. Brown. Susan explains to him that she enjoyed learning beginning carpentry skills and that her camp counselor said that she was a fast learner. She would like to find a part-time job where she could learn more about carpentry. Susan thinks that she might find out more about carpentry as a career for her. Mr. Brown agrees with Susan that this is a good way to find out more about a career in carpentry and tells Susan that his school keeps a notebook of employers who hire high school students.

Susan reads through this notebook. She finds a small contracting company listed and, with Mr. Brown's encouragement, she calls to make an appointment. Susan takes the reference letter from her camp counselor to the interview and talks with a carpenter who works for the contracting company. He is impressed with the work she has done in looking for a job and with the carpentry skills she acquired last summer. Mr. Schulz, the carpenter, is willing to hire her a couple of afternoons a week on a trial basis. She'll be working and learning on the job.

Step 4. Evaluate the Plan

Susan decides that her plan for finding a job was an effective one because she was actually able to get a job doing what she wants to do. She was hoping to work weekends also, but decides that the experience she will gain is more important. This job is also on a busline she can reach from her home.

Because Mr. Schulz will be teaching Susan carpentry skills at work, at first she will be earning about as much as she did babysitting. But there is potential for earning more money after she has gained some experience in this job. This is an improvement Susan hopes for in the future. Susan is excited about her new job and pleased that her plan for finding a part-time job was successful.

Problem Solving

Activities

For each problem situation you select, apply Step 1 and answer each question. Repeat for Steps 2-4.

1. Read the first few paragraphs of a news story in a daily paper.

2. Interview school staff members from various departments (food service, transportation, administration) to learn what problems they have in their departments.

3. Ask students to reflect on their lives and identify problems they have had and solved.

4. Have students identify problems of current community interest.

5. Ask students to suggest topics which may become problems in the community, country, or world.

Suggested Topics for Problem Solving Practice

Family Relationships

parents
divorce
privileges
responsibilities
sibling rivalry

Neighborhood Concerns

noise --TV, stereo, kids, dogs, cars
traffic
historic site preservation
in-street recreation
cleanliness and yard care

Peer Conflicts/Concerns

dating
popularity
acceptance
peer pressure
career and education choices

Ecology

noise
water pollution
air pollution
conservation
population growth
(animal and human)

School Policies, Procedures and Rules

menu and cafeteria
parking
dress codes
grading

Social Concerns

teenage pregnancy
drug abuse
smokers and nonsmokers rights
alcoholism
teenage suicide
lack of employment opportunities
delayed adulthood
teenage marriage

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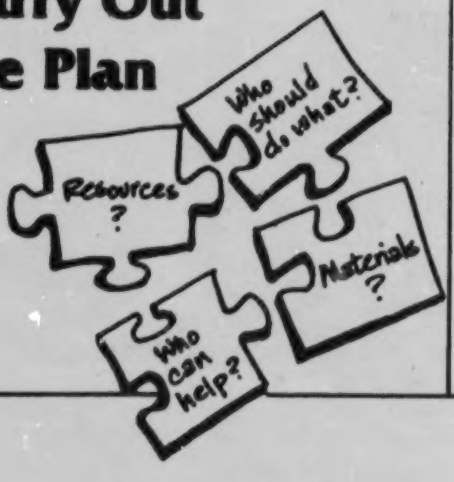
(Transparency Master)

Problem Solving

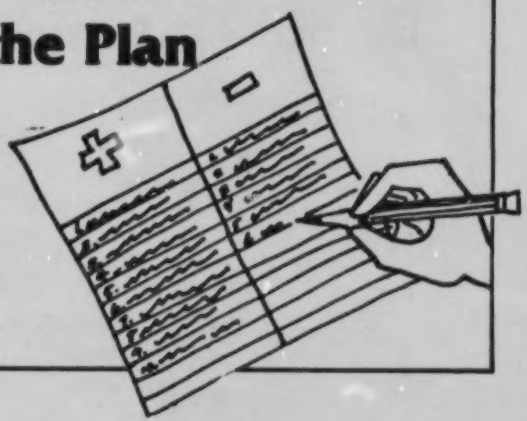
Step 1: Identify the Problem

Step 2: Devise a Plan of Action

Step 3: Carry Out the Plan



Step 4: Evaluate the Plan



(Transparency Master)

Step 1

Identify the Problem. Ask yourself:

- WHAT INFORMATION IS KNOWN?
- WHAT IS UNKNOWN?
- WHAT INFORMATION IS NEEDED?
- WHERE OR HOW CAN I GET THE INFORMATION?

WHAT IS THE PROBLEM?

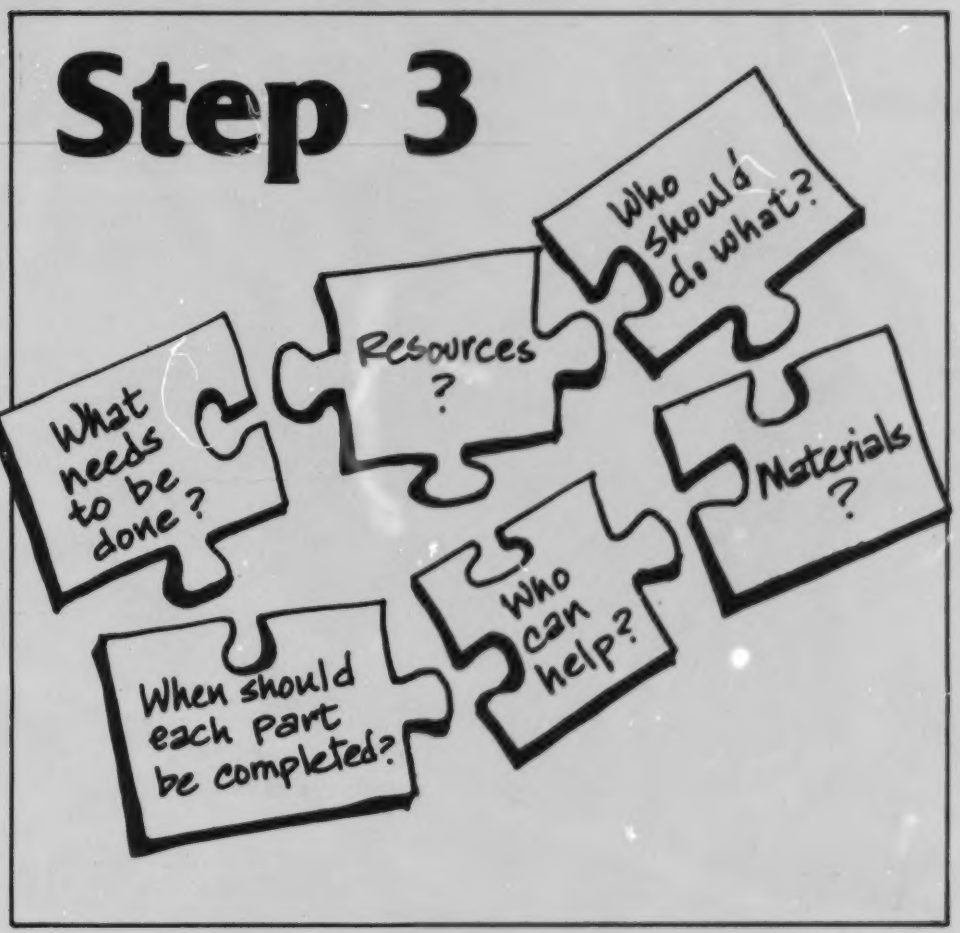
(Transparency Master)

Step 2

Devise a plan of action. Ask yourself:

- What can be changed to help or to eliminate the problem?
- What are the limitations? (For example: Money, time, space)
- What are my choices (Alternatives)?
- What is good and what is bad about each alternative?
- Which alternative seems best?
- Which alternative seems least promising?
- Do I know enough to decide? (If not, gather more information. If so, select the best alternative and go to Step 3.)

(Transparency Master)

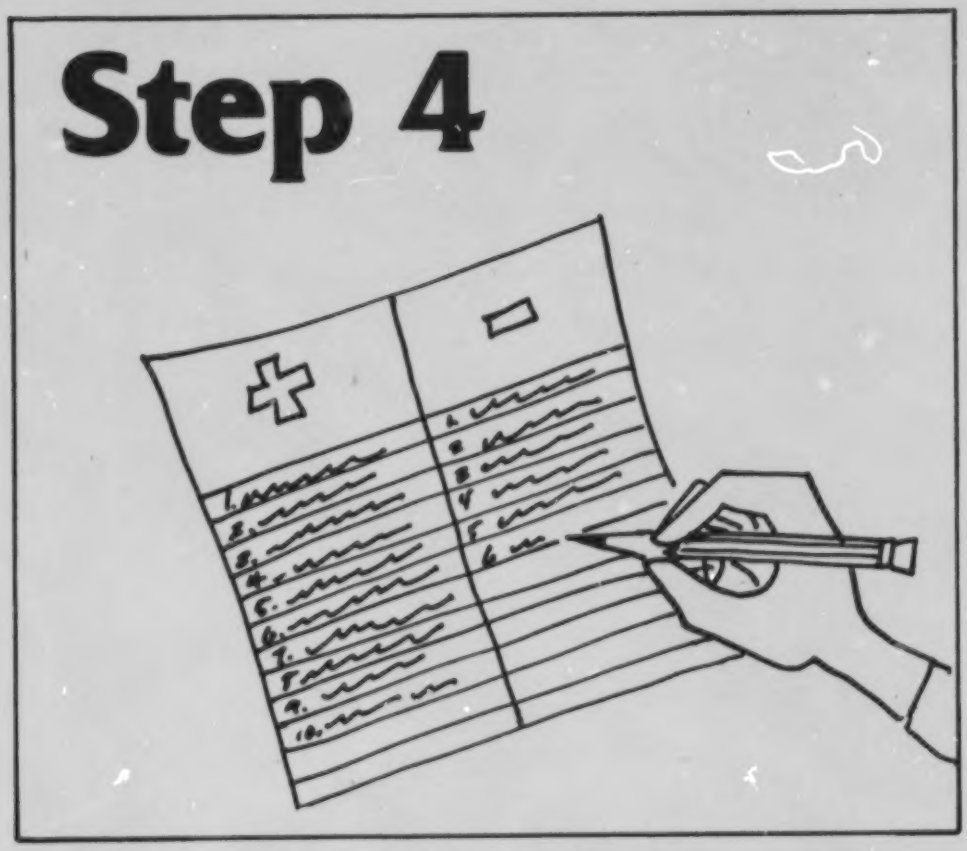


Carry out the plan. Ask yourself:

- WHAT DO I NEED IN ORDER TO CARRY OUT THE PLAN?
- WHO SHOULD DO WHAT?
- WHEN SHOULD EACH STEP OF THE PLAN BE COMPLETED?

(Transparency Master)

Step 4



Evaluate the Plan. Ask yourself:

- How do I know if the plan was a success?
- What changes should there be?
- Are the results of the plan acceptable?
- Should I start over because of new information I learned about?

Interpersonal

Research has indicated that a lack of positive attitudes and interpersonal skills accounts for more job loss than does the lack of more technical or job-specific skills. Many organizations are now providing extensive educational programs in this area for adults. It is important that the students in your class be exposed to the potentially broad application associated with interpersonal skills.

Sensitivity to Others

Activities

1. Students pair off and write down three questions about their partners. Partners can respond orally or in writing.

   The class can discuss these areas:

   - types of questions (e.g., actual, personal, etc.) asked or not asked
   - factors that influenced decisions concerning what to ask
   - satisfaction regarding partner's response (e.g., too brief, evasive, etc.)
   - new information discovered about the person
   - other ways besides direct questioning that could be used to find out about the person

2. Follow up with a repeat of this activity (with same pairs) several weeks later. Discuss new information found, difference in questions asked.

3. Discuss job situations and appropriate ways to learn about co-workers (e.g., questions, observation, empathizing, etc.).

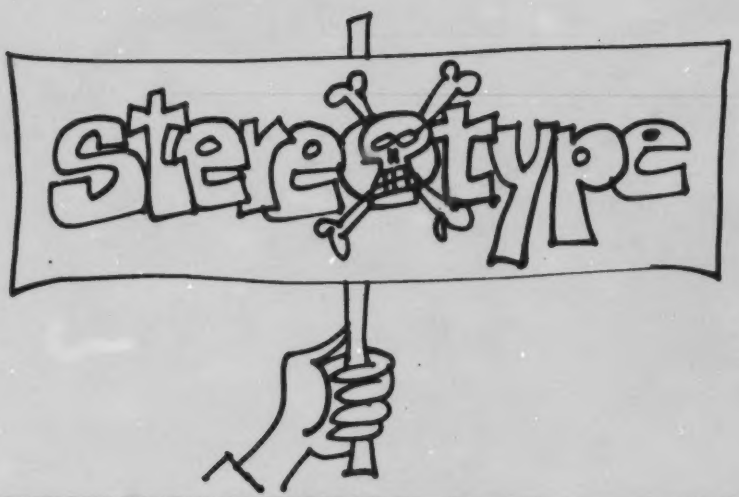
Variations

A. Students list three questions about a media personality or politician, and discuss ways to get responses (e.g., letters, reading about the person, etc.).

B. Ask students to list three questions and responses about themselves which they feel reveal important information about themselves.

C. Students list five other clues or signals they send out which let others know more about them.

D. Students discuss ways of getting to know someone (e.g., introduction, casual friend, etc.). Relate to types of situations such as relationships with a family, club, job, etc.



Evaluation of Others

Activities

1. Give groups of students a list of ten stereotypes and brief descriptions of each. (Examples: the athletic "jock," the teacher's pet, the campus queen, the cheater, the average John Doe, the religious fanatic, the gossip, etc.).

2. Groups decide on three least appealing or most objectionable types and state the reasons.

3. Ask the class to compare each group's choices and discuss the reasons. Discuss what possible circumstances cause people to behave as these types--family problems, low self-esteem, sudden move to new area, etc. Also discuss positive attributes each type can have.

4. Relate these types of adults whom students may know (e.g., neighbor is the gossip, man who files false tax return is cheater er, Little League coach is jock, etc.).

5. Point out personality types on jobs. Discuss why people behave as they do as well as positive personality traits each type might possess.

6. Discuss the problems created by stereotyping and by making assumptions based on stereotyped images of others.

Variations

A. Give groups a hypothetical situation and ask students to describe how each type of personality would respond. Situations can begin with school settings and expand to community and job situations.

   Some examples of such situations are:

   - Student requests change of course schedule from administrator
   - Several partially sighted students have been placed in the class and students are asked to assist them
   - A student has been working in a fast food restaurant for several months and would like to apply for a promotion. The supervisor is looking for someone older and with more experience.

B. Students pair off and list personality traits for themselves and their partner. Pairs can discuss lists and make changes. Point out how others see us and why. Point out how people all hide some of their true personality traits.

C. Students list clues to personality that employers may "read" in us. Also, reverse the role; list clues employees see in bosses. Discuss possible problems in work situations due to misconceptions of the personality of coworkers.

Group Process

Activities

1. Give description of fifteen people on a sinking ship. Use descriptions such as young, old, men, women, children, single, married, handicapped, etc. The life raft will accommodate only five people.

2. Students must individually select the survivors in three minutes.

3. Students should form groups of eight to ten and select a group leader.

4. In the groups, students repeat the selection process, reaching agreement in ten minutes.

5. A predetermined observer will record and report the group members' and leaders' behavior in reaching a decision (e.g., democratic, autocratic). The observer will not communicate nor participate in the activity.

6. Discuss the difficulty in reaching group decision versus the ease in making individual decisions.

7. Using information collected by the observer, compare the process of groups in terms of expediency and human relations.

8. Identify factors which facilitate or inhibit group decision making and factors which alienate some people.

9. Relate the activity to job, school, community, family, and government decision making.

Attitudes and Self-Concept

Activities

1. Challenge students to see the effect of a positive self-image in students around them. As part of class assignment, instruct students to select someone younger (in or out of school) about whom they feel positive.

2. Students offer positive feedback to the younger person at each opportunity and observe reaction in terms of motivation, effort, output (duration--one week).

3. Students discuss in class the power of positive reinforcement in production, attitude, and self-esteem.

Variations

A. Use a role playing exercise in which the supervisor and supervisee show the effect upon production of a worker when positive feedback is given.

B. Discuss methods supervisors may use to deal directly with extremely negative behavior.

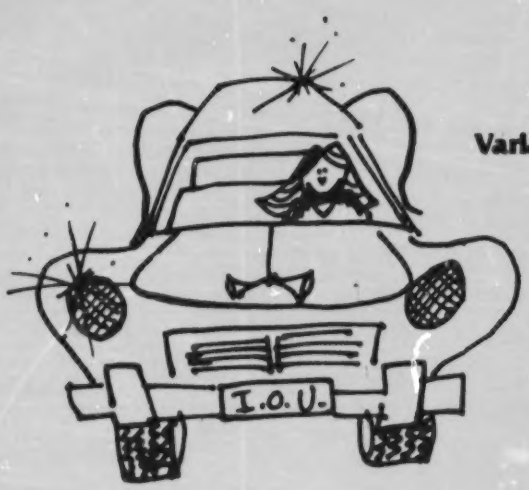
Computation

Basic computation skills are useful in a wide variety of settings outside the classroom. As consumers and often as workers, people are required to make practical use of basic arithmetical operations. Research evidence indicates that math skills learned in courses through first-year algebra are transferable across many occupational situations. Keeping records, handling money, purchasing food, clothing, and other consumer activities are but a few examples where application of basic computation skills is important.

Loans

Activities

1. Students bring automobile advertisements to class.
2. Each student selects a car and fills out a sample loan application form.
3. Instructor "awards" loans to each student and the students must compute the principal and interest of the loan.



Variations

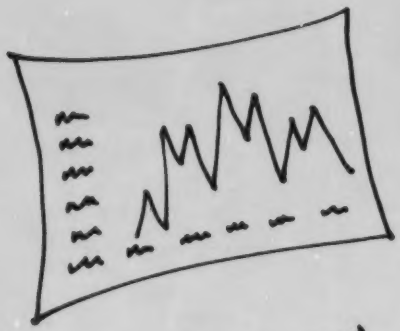
A. Groups compare and discuss the best loan situation.

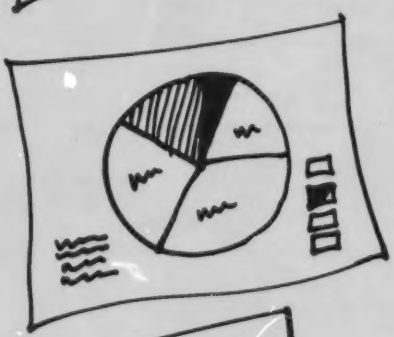
B. Students make "payments" over several months and compare the principal and interest each "paid" after that time.

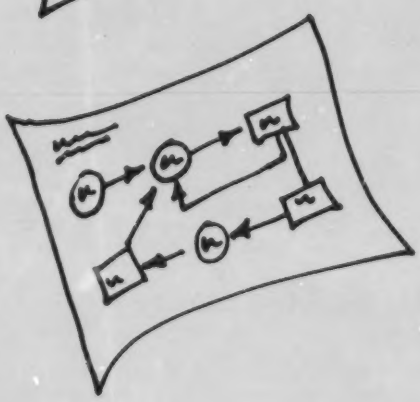
C. Students choose homes, appliances, etc. to become aware of various loan procedures and pitfalls.

D. Students attempt to include a new loan within the budget prepared in the money management activity (see page 68).

Analyzing and Synthesizing







Activities

1. Using the school as a source of data collection, students extract data from tables and charts and also present information in table, graph, and chart form in the various class assignments.

   The following sources may be used for data:

   - Athletic department--wins, losses, ERA's, batting average, field goal, shooting percentages, yardage gained, etc.
   - Library book circulation data
   - Cafeteria meals served, costs, etc.
   - Numbers of new students, withdrawals, absences, suspensions, numbers of honor students, number of failures, etc.
   - Custodial costs, time breakdowns, etc.
   - Business office--salaries of professional staff, utility costs, energy costs and savings, student demographic information.

Variations

A. Students develop charts, graphs, etc. to reflect their personal expenditure of time, money, etc.

B. Students develop circle graphs for individual athletes to show total breakdown of performance (e.g., total at bats versus singles, doubles, triples, ground outs, strike outs, fly outs, reaches on error, etc.).

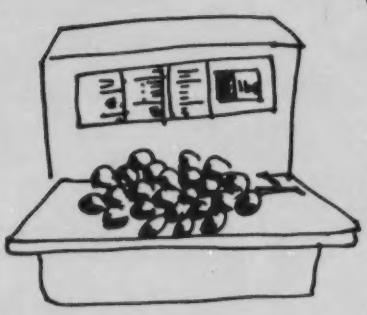
C. Using copies of payroll deductions, students present information in graph, table, or chart form which shows proportion of salary withheld for each purpose.

D. Using newspapers, resources at library, etc., students extract information from available charts and graphs.

Estimations and Judgements

Activities

1. Students bring advertisements and catalogs to class with prices covered.
2. Teacher allows each student (or small group) an amount of money to spend.
3. Students list items and estimated prices and then compare the list to actual prices.
4. Discuss the real value of a wide variety of products and services, emphasizing consumer spending practices.



Variations

A. Instead of consumer items, students can use weights, measurements of area, etc. List items with size covered. Give students a total size and ask them to list items which add up to the total.

B. Use unit-pricing practice to teach students how to get the most for their money.

C. Discuss advertisement gimmicks to point out pitfalls and problems.

Money Management

Activities

1. Students list their own income (job, allowance, etc.) and their expenses.

2. Students discuss the following:

   - Where their money goes
   - How to increase income
   - Seasonal or unexpected expenses
   - Savings--need for, how accumulated, how much
   - Records--checking account, loan payments, etc.

Variations

A. Students simulate a budget for first job (single person).

B. Students compute the purchase of a car--cost, financing, upkeep, insurance.

C. Students simulate a married couple's budget, considering the following possibilities:

   - Both working
   - One working
   - Family increase
   - Illness, hospitalization, accident, car loss, etc.--any major changes

D. Students work in groups to prepare budget. Discuss and evaluate each.

E. Discuss advantages and disadvantages of using charge cards.

F. Apply discussion questions to any variation (number 2 at top of the page).

G. Select other items from Consumer Economic Skills List in the Appendix (page 97).

Communication

Communication skills include verbal and nonverbal forms of communication, written expression and comprehension, and speaking and listening. These are perhaps the most basic of all transferable skills and virtually all life and occupational roles require some level of proficiency for successful performance. Indeed, to communicate is to learn, and the classroom provides an opportunity to learn and practice many types of communication skills which are equally important for survival on the job, in the home, and within the community.

Instructions and Messages

Activities

1. Give small groups or individual students a set of step-by-step oral instructions (assignment from text, out-of-class assignment, research project, etc.). Students may or may not take notes.
2. Students follow the instruction and complete the task; the instructions are repeated and students compare their results to the instructions.
3. Students discuss problems such as how to listen and how to note key words. Class relates this to job situations and employer directions.

Variations

A. Students receive written instructions with no verbal explanation.

B. Instead of receiving procedural instructions, students take messages in writing from a verbal explanation. Comparisons of messages for accuracy can follow.

C. Students bring transportation schedules, labels on medicine, directions for ordering catalog items, etc., to class and discuss as suggested above.

D. Students demonstrate a procedure to the class or to a small group (craft or hobby, day-to-day function) and the group offers feedback and suggestions on giving good instructions.

Memory

Activities

1. Small groups or individuals listen to a tape (about one to three minutes) of a newspaper, textbook, or magazine article.
2. Each group or student writes down every fact they can recall.
3. Class compares and combines lists into one.
4. Tape is repeated and adjustments to the list are made.
5. Class discusses the importance of an accurate memory. Students can point out ways they remember facts--key words, organization of article, main ideas with subpoints.
6. Several days later, the class lists facts from the tape and comparisons are made as before. Students also discuss problems in long term versus short term memory tasks.

Variations

A. Students listen to tapes of job procedures or company rules and follow the steps listed above.

B. Students receive an oral list of items needed for a future class assignment. On the day of the assignment, the items are checked.

C. Students list situations in their daily lives when accurate memory is vital. Students discuss possible situations on jobs when memory is vital.

Interaction

Activities

1. Each student is given a list of 10-15 descriptors. Examples:
   - Likes rock music
   - Favorite color is blue
   - Is a jogger, etc.
2. Student tries to find a person who fits each descriptor and secures the person's signature on the blank after the descriptor.
3. Class or small groups interact by discussing:
   - Easiest descriptor to locate
   - Most difficult to locate
   - Unexpected information secured, etc.

Variations

A. Use descriptors pertinent to subject matter (art, math, etc.).

B. Use descriptors as subgroup for discussion of their commonality.

C. Students try this activity (revised) in the community, working as a student team.

Activities

1. Teacher reads brief article or story to an individual student, in a low voice, facing away from class.

2. Student repeats it to another, in the same way, continuing until all pupils have repeated the story.

3. Last student repeats it to the class. Teacher reads original. The last student's version and the original version are compared.

4. Class discusses reasons for changes:

   - Factors that inhibited good listening
   - Factors that promoted good listening
   - Importance of eye contact, gestures, body language, etc.

Variations

A. Teacher plans interruptions and class discusses their effect.

B. Class repeats the exercise and checks for improved accuracy.

C. Instead of an article, teacher uses instructions for a simple task related to subject area, e.g., threading a sewing machine, constructing an equilateral triangle, inserting paper in typewriter.

D. Students bring in articles, instructions, etc., to read for listening exercises.

Listening

5. Identifying Transferable Skills

- Skill Lists
- Gold Mine
- Assessing Transferable Skills

How Can Transferable Skills Be Identified?

This section presents several methods for identifying a broader range of transferable skills. The methods vary from choosing skills from prepared lists (Appendix) to using the perceptions and experiences of students to generate your own list. Since the use of either method involves a wide variety of skills, it would be prohibitive to provide classroom activities for each of them. However, by reviewing the guidelines presented earlier as well as some of the activities described for the four skill areas of communication, computation, problem solving and interpersonal, you should get a sense of the type of activities that will encourage the application of such skills. It's worth mentioning once more that the activities you devise for your class should be those your students can internalize, based on their backgrounds and interests. Thus it is important to involve them in the selection, or better yet, in the development of activities for learning to apply such skills in other situations. The more responsibility your students assume in this regard, the better they will be able to relate to the importance of transferable skills.

Skill Lists

One of the simplest ways to identify transferable skills is to choose from among the lists of skills that appear in the Appendix of this guide. These lists were developed during research activities at the National Center for Research in Vocational Education. You may choose, for example, to focus on the transferable skills "get promoted on the job" or "ask for a raise in salary" or "get along with others." Or you may want to choose four to six skills from the list and have your class select the one on which to focus. Instead of using a prepared list, you may wish to develop your own list of skills based on the experiences and perceptions of your students. One technique for doing this is call GOLD MINE.

Gold Mine

Gold Mine* can be used to identify the essential life skills that should be developed by students individually. Life skills include abilities that enable people to survive and succeed in life and work. Teachers and students can be involved on an equal basis and their individual contributions and priorities can be accommodated in a nonthreatening environment. The group can arrive at a consensus on the priority of skills that students should develop, and then identify the contribution to be made by a course in the school program. Using such skill lists when planning the curriculum will help make school meaningful to students.

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* The Gold Mine activity for identifying transferable skills was developed by William Ashley, Director of the Transferable Skills Program at the National Center for Research in Vocational Education, The Ohio State University, Columbus, Ohio.

Group Skill Identification

Step 1. Give students handouts listing different kinds of skills. (You may wish to use the lists at the end of this guide.) Encourage students to create their own skill statements.

Step 2. Each student receives five index cards and is instructed to write on each card one essential or important skill that students should learn. The skills may be school skills (necessary for success in school) or life skills (necessary for success in life and work). The similarity between school skills and life skills should be emphasized.

You may wish to have your students focus on one category of skills during each of three rounds. For example, in round 1, they could focus on cognitive or "thinking" skills; in round 2 on psychomotor or physical/manipulative skills; and in round 3 on affective or attitudinal and interpersonal skills. Skills may also be organized according to type, such as communication, mathematics, reasoning, problem solving, decision making, etc.

Step 3. After students have written a skill on each of the five cards, they arrange them in order of priority according to their own sense of importance.

Step 4. Next, students show their first priority skill statement to other participants and take note of others who have similar skill statements. (Depending on the number of students and the seating arrangement, students may walk around to view each others' cards.)

Step 5. Students now form groups by joining others who have skill statements they support. The purpose of forming groups is to get students together according to common interests.

Step 6. The members of each group review all of their skill cards together, discarding duplicates and selecting the five most important skill statements from the remainder. Allow about three to five minutes for this activity, and keep the activity moving or interest will lag.

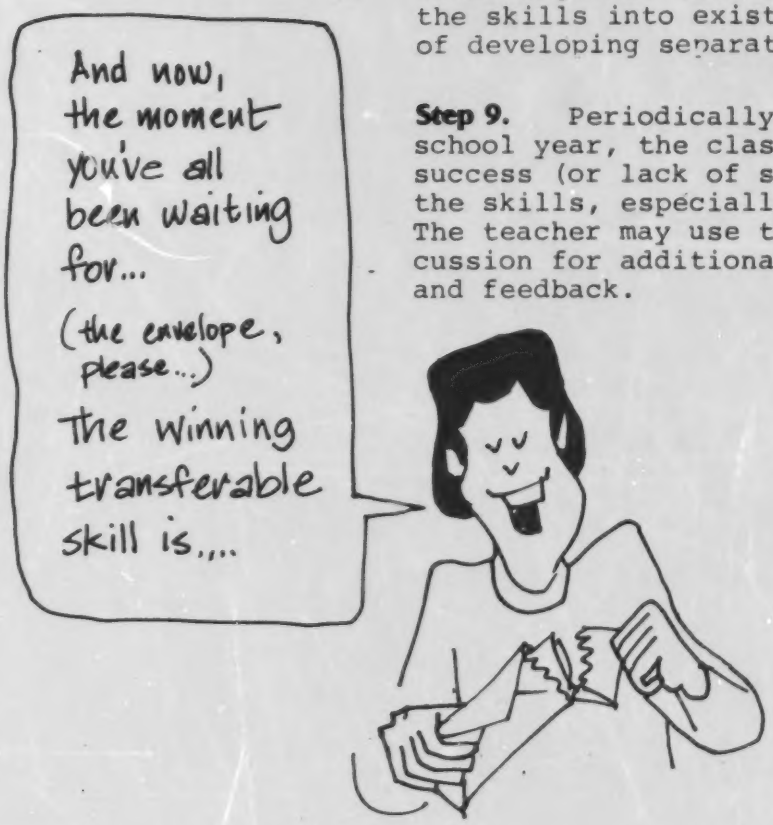
Step 7. Each group announces the five skills they have selected and the teacher writes them on a blackboard. As each group reports its skills, duplicates are deleted. A sample skills list might include:

- Interpret written instructions
- Add and subtract numbers to find totals
- Give clear verbal instructions
- Make good use of leisure time
- Study effectively
- Follow verbal directions
- Assemble objects according to a diagram
- Find a location on a map
- Convert fractions to decimals
- Deal effectively with other opinions

If skills are identified according to categories (psychomotor, affective, cognitive), two more rounds are carried out to identify skills in the remaining categories, following the procedures for Round 1. Each person lists five new skills, ranks them, shows them to others, and forms groups according to similar skill statements. Five skills are selected for each group and recorded on the board or tablet.

Step 8. After all the skills are listed on the board, each skill is assigned a priority in the list. The students then reduce the list by selecting the most important skill in each category. A tally is taken, with each group casting one vote for its first choice of the most important skill. Skills are scored and the one receiving the most votes is designated as number one. If no skill receives a majority, then each group is allowed two minutes to persuade another group to vote for its skill. Another vote is taken and the winning skill is identified and deleted from the next vote. The voting is continued until all skills are ranked in order of priority.

The skill lists can then be used in curriculum planning for appropriate subjects. For assistance in the curriculum planning process, you may wish to refer to the list of resources following this section. Try to incorporate the skills into existing curricula instead of developing separate units of instruction.



Step 9. Periodically, or at the end of the school year, the class should discuss its success (or lack of success) in developing the skills, especially high priority items. The teacher may use the results of the discussion for additional curriculum planning and feedback.

Gold Mine: Individual Skill Identification

In individualized learning classrooms, you may find it useful for each student to rank in order of priority their own skill list. The following version of Gold Mine is designed for this purpose. It recognizes that each student has unique needs for skill development. This activity avoids eliminating a skill of importance to a particular student during the group skill identification and assigning of priorities.

Each student's list may become an individualized learning plan for transferable skill development. The student may work individually or with others to develop the skills and may use the list to keep a record of progress.

Step 1. Give each student lists of different kinds of skills. Students are encouraged to examine the lists and then to create their own skill statements.

Step 2. Students receive ten index cards and are instructed to write on each card one essential or important skill that they should learn. The skills may be school skills or life skills, but the similarity between school and life skills should be emphasized.

You may wish to have your students focus on one category of skills during each of three rounds. For example, Round 1 could focus on cognitive or "thinking" skills, Round 2 on psychomotor or physical/manipulative skills, and Round 3 on affective or attitudinal and interpersonal skills. Skills may also be organized according to type, such as communication, mathematics, reasoning, and problem solving.

Step 3. After students have written a skill on each of ten cards, they arrange them in order of priority according to their own sense of importance.

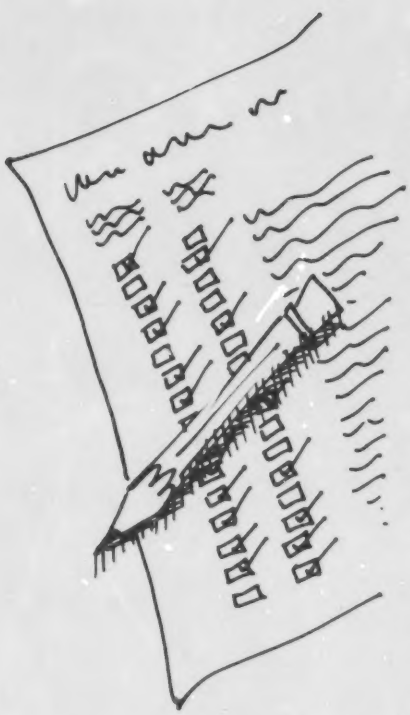
Step 4. Next, students form groups by joining others who have similar skill statements. The purpose of forming groups is so that students with similar interests may explore each others' skill statements.

Step 5. The members of each group review all of their skill cards together. The group may briefly discuss the relative importance of each statement. The members may discover skills they had not thought about and reasons for assigning priorities that may not have occurred to them. Allow up to a half-hour for this step.

Step 6. Individuals revise and rearrange their skill cards based on any new information they learned during the group session.

Step 7. Students discuss individually their skill lists with the teacher in order to devise a plan for attaining the skills. Individual or group work may be planned.

Assessing Transferable Skills



One approach to assessing transferable skills and transfer skills is forming a checklist to be used by students, teachers and, perhaps, students' parents and employers. The skill lists formed during the Gold Mine exercise can easily be printed in checklist form. Or, you may wish to use the checklists provided on the following pages instead of or in addition to the Gold Mine lists. These checklists were derived from transferable skill lists identified during research studies.

Students should choose certain skills (or checklist items) to work on each week or month. Over a period of time--perhaps an entire school year--the students can use the checklist to "test" their skills. You, the teacher (employer or parent), may also use the checklist at regular time intervals--such as once a month--to check on student progress and provide encouragement and assistance as needed.

Checklist items can be used to design activities in which students may practice skills appropriate for the subject you teach. The activities provide a framework for using the checklists to assess student skill development. For example, you may design a problem solving activity in your subject for the following checklist item: "[Can you] Figure out a better way to get things done?" A math or economics instructor could easily integrate activities for the Consumer and Economic Skills Checklist items into existing curriculum.

Often, the best way to assess student progress on checklist skills will be to have periodic individual interviews or group discussions in which students can share their recent experiences, achievements, or setbacks in transferable skill development.

The following checklists represent a broad range of basic transferable skills, but are not intended to be all-inclusive. You may wish to use the entire checklists or parts of them. You could combine these checklist items with your own--or, better yet, with students' own checklist items.

Occupational Adaptability Skills Checklist

Teacher Does the student:	Student Do you:		
☐	☐	1.	Get along with others?
☐	☐	2.	Dress appropriately for school or work?
☐	☐	3.	Have a good work (or school) attitude?
☐	☐	4.	Get work done on time?
☐	☐	5.	Take chances that may result in rewards?
☐	☐	6.	Follow job or school safety and health rules?
☐	☐	7.	Deal effectively with unexpected things that happen?
☐	☐	8.	Follow rules and policies?
☐	☐	9.	Use materials and/or other people's knowledge to develop your job interests?
☐	☐	10.	Know when your own work is being done well?
☐	☐	11.	Manage your own time and activities?

Teacher can the student:	Student can you:		
☐	☐	1.	Tell others what you are doing or what you want done?
☐	☐	2.	Work without supervision when necessary?
☐	☐	3.	Figure out a better way to get things done?
☐	☐	4.	Get support from others to change things that need changing on the job?
☐	☐	5.	Persuade others to your way of thinking?
☐	☐	6.	Learn new job skills to get a different job or position?
☐	☐	7.	Decide how and when to leave a job for another job?

Occupational Adaptability Skills Checklist (continued)

Teacher can the student:	Student can you:	
☐	☐	8. Use what you already know to do a new or different job?
☐	☐	9. Understand the wages and deductions on your paycheck stub?
☐	☐	10. Understand the extras or benefits offered with a job?
☐	☐	11. Figure out the cost of using your own car or public transportation in getting to or from work?

Adapted from:
N. A. Selz and J. S. Jones. *Functional Competencies in Occupational Adaptability and Consumer Economics.* (Columbus, OH: The Ohio State University, The National Center for Research in Vocational Education, 1979).

Consumer and Economic Skills Checklist

Teacher can the student:	Student Can you:		
☐	☐	1.	Make change using bills and coins?
☐	☐	2.	Write a check or fill out a money order?
☐	☐	3.	Add the total cost (plus tax) of a purchase?
☐	☐	4.	Decide if a more expensive item is worth the extra cost?
☐	☐	5.	Balance a checkbook?
☐	☐	6.	Find a savings plan that meets your needs?
☐	☐	7.	Establish a credit rating?
☐	☐	8.	Manage money so you can pay your bills?
☐	☐	9.	Keep records and receipts needed to file income tax forms?
☐	☐	10.	Prepare and maintain a budget?
☐	☐	11.	Explain how changes in the economy make a difference in how much you have to spend?
☐	☐	12.	Explain how the price of gasoline and other resources is changed as supplies are used up?
☐	☐	13.	Decide which purchases you make are necessary and which are not?
☐	☐	14.	Decide if you should pay cash or charge what you buy?
☐	☐	15.	Find stores that have the best bargains?
☐	☐	16.	Decide which item is the best buy based on unit prices?
☐	☐	17.	Decide which kind of insurance coverage is best for you?
☐	☐	18.	Have something fixed on warranty?
☐	☐	19.	Order things from a catalog?
☐	☐	20.	Decide between renting and buying things you may not need very often?
☐	☐	21.	Tell when you are not getting satisfactory service from doctors, mechanics, lawyers, etc.?

Consumer and Economic Skills Checklist (continued)

Teacher Does the student:	Student Do you:	
☐	☐	1. Take good care of your belongings or property?
☐	☐	2. Fix things when they break or tear?
☐	☐	3. Reccgnize false advertising when you see it?
☐	☐	4. Make the right decisions about buying things that are advertised to make you want them?
☐	☐	5. Get help if you have problems with your purchases?
☐	☐	6. Get your money back if the item you bought is not well made or does not work well?
☐	☐	7. Complain to the right person about poor service?

Adapted from:
N. A. Selz and J. S. Jones, *Functional Competencies in Occupational Adaptability and Consumer Economics.* (Columbus, OH: The Ohio State University, The National Center for Research in Vocational Education, 1979).

References

Ashley, W. L., *Gold Mine*, 1978.

Biehler, R. F., *Psychology Applied to Teaching*, 3rd ed. (Boston: Houghton Mifflin Company, 1978).

Pratzner, F. C., *Occupational Adaptability and Transferable Skills: A Summary Report of the Project* (Information Series No. 129), 1977.

Selz, N. A. and Ashley, W. L., *Teaching for Transfer: A Perspective for Practitioners* (Information Series No. 141), 1978.

Resources

If you would like to know more about transferable skills and the transfer process, the following reports and studies are available from the National Center for Research in Vocational Education.

Altman, J. W. *Transferablility of Vocational Skills: Review of Literature and Research* (Information Series No. 102), 1976.

A review of what is known about the transferability of occupational skills, describing the process or the facilitators of skill transfer.

Ashley, W. L. *Occupational Information Resources: A Catalog of Data Bases and Classification Schemes* (Information Series No. 104), 1977.

A quick and concise reference to the content of 55 existing occupational data bases and 24 job classification schemes. Abstracts of each data base and classification scheme include such information as identification, investigator, location, documentation, access, design information, subject variables, occupation variables, and organization variables.

Ashley, W. L., Ammerman, H. L. *Identifying Transferable Skills: A Task Classification Approach* (R & D Series No. 146), 1977.

A report of an exploratory study designed to test the usefulness of three classification schemes in identifying the transferable characteristics of tasks in diverse occupations.

Ashley, W. L., Laitman-Ashley, N. M., Faddis, C. R. (Eds.) *Occupational Adaptability: Perspectives on Tomorrow's Careers* (Information Series No. 189), 1979.

Proceedings from a national symposium. The topics focused on how training for adaptability can increase the use of human resources in the labor force.

Brickell, H. M., Paul, R. H. *Minimum Competencies and Transferable Skills: What Can Be Learned From the Two Movements* (Information Series No. 142), 1978.

Kirby, P. *Cognitive Style, Learning Style, and Transfer Skill Acquisition*, 1979.

A review and synthesis of the literature in adult learning styles as they relate to the acquisition of transfer skills.

Knapp, J. E. *Assessing Transfer Skills*, 1979.

A review of traditional and non-traditional assessment with respect to the assessment of transfer skills.

Laitman-Ashley, N. M. (Ed.). *Women and Work: Paths to Power* (Information Series No. 190), 1979.

Proceedings from a national symposium that offer perspectives on women in the work force. Topics cover five major transition points that any person can experience in a lifetime.

McKinlay, B. *Characteristics of Jobs That Are Considered Common: Review of Literature and Research* (Information Series No. 102), 1976.

A review of various approaches for classifying or clustering jobs and their use in (a) describing the elements of commonality involved when people make career changes, and (b) understanding better the concepts of occupational adaptability and skill transfer.

Miquel, R. J. *Developing Skills for Occupational Transferability: Insights Gained from Selected Programs* (Information Series No. 125), 1977.

A report of clues and suggestions gained in the review of 14 existing training programs, with recommendations for practice which appear to have been successful in recognizing skill transfer and taking advantage of an individual's prior skills and experience.

Selz, N. (Ed.). *Adult Learning: Implications for Research and Policy in the Eighties*, 1979.

Proceedings from a national symposium on adult learning. Topics include state of the art, research into practice, policy implementation, and future directions.

*Selz, N.A., Jones, J.S., and Ashley, W.L. *Functional Competencies for Adapting to The World of Work*, 1979.

Perceptions of national adult samples are reported. Document includes where competencies should be taught--at home, at school, on the job, self-taught--and how important these competencies are in successful work and life activities.

Sjogren, D. *Occupationally Transferable Skills and Characteristics: Review of Literature and Research* (Information Series No. 105), 1977.

A review of what is known about the range of occupation-related skills and characteristics that could be considered transferable from one occupation to another, describing those transferable skills which are teachable in secondary and postsecondary career preparation programs.

Sommers, D. *Empirical Evidence of Occupational Mobility* (Information Series No. 193), 1979.

A review and synthesis of the literature on the characteristics of occupationally mobile workers and their jobs.

Wiant, A. A. *Self-Assessment for Career Change: Does It Really Work? Summary Report of a Follow-Up Study* (Information Series No. 191), 1979.

An analysis of the impact of self-assessment on one's subsequent employment experience. The particular assessment technique studied is one intended to help identify those skill attributes which have provided satisfaction in various life experiences. Outcome measures include skill use and job satisfaction.

Wiant, A. A. *Transferable Skills: The Employer's Viewpoint* (Information Series No. 126), 1977.

A report of the views expressed in nine meetings across the country by groups of local community and business representatives concerning the types of transferable skills required and useful in their work settings and how a better understanding of transferable skills could improve training and occupational adaptability.

The following materials may assist you in developing curriculum and teaching techniques that facilitate transferable skill development.

Hamilton, J. B., Norton, R. B., Fardig, G. E., and Quinn, K. M. *Performance-Based Teacher Education (PBTE) Materials*, American Association for Vocational Instructional Materials, 1979.

Self-contained, individualized instructional packages for teachers. Topics include planning, implementing, managing and evaluating instructional programs, establishing school-community relations and coordinating cooperative education.

The following career planning classroom materials may assist you in identifying student skills and interests, help students plan their curriculum for their careers, and help you relate school subject matter to job applications.

Career Planning System (CPS): A Program for Career-Oriented High School Planning, 1978.

An individualized career development program that guides 8th and 9th grade students in planning their high school curriculum and extracurricular activities.

Appendix

Lists of Transferable Skills

Occupational Adaptability Skills

Know what kind of work you want to do.

Hold a job that matches your interests and abilities.

Get a job for which you have the training and background.

Know if you want to own a business or work for someone else.

Use the reading, writing, and math skills the job calls for.

Get along with others.

Use the tools and equipment a job calls for.

Do parts of the job you may not like to do.

Know where to look for information about the job you have or would like to have.

List job interests, skills, and experience for an employer.

Interview for different job positions when necessary.

Fill out forms as required by law or by an employer.

Get information about what is expected of you when starting a new job.

Dress and act properly.

Have a good work attitude.

Deal with pressures to get the job done.

Tell others what you are doing or what you want done.

Work without supervision, if necessary.

Figure out a better way to get things done.

Adopted from:
Selz, N.A., Jones, J.S., and Ashley, W.L. *Functional Competencies for Adapting to The World of Work.* Columbus, OH: The Ohio State University, The National Center for Research in Vocational Education, 1979.

Get support from others to change things that need changing on the job.

Do things at work in a new way when you get the chance.

Take chances that may result in rewards.

Follow job safety and health rules.

Deal with unexpected things that happen.

Know your rights as an employee.

Follow rules and policies.

Be a member of a union or professional group.

Persuade others to your way of thinking.

Use materials and the knowledge of other people to develop your job interests.

Know when your own work is being done well.

Learn new job skills to get a different job or position.

Get promoted on the job.

Ask for a raise in salary.

Decide how and when to leave a job for another job.

Use what you already know to do a new or different job.

Manage your own time and activities.

Understand wages and deductions on your pay check or stub.

Understand the extras or benefits offered at work.

Figure out the cost of using your own car or public transportation in getting to and from work.

Consumer Economic Skills

Make change using bills and coins.

Write a check or fill out a money order.

Add the total cost (plus tax) of a purchase.

Decide if a more expensive item is worth the extra cost.

Balance a checkbook.

Shop around for the kind of savings plan that meets your needs.

Decide what gives you the best return (or profit) on your money, if you want to save money.

Apply for credit cards (gas, department store, Master Charge, etc.)

Manage money so that you can pay your bills.

Keep records and receipts to file income tax forms.

Prepare and maintain a budget.

Understand how changes in the economy make a difference in how much you have to spend.

Understand how the price of gasoline and other resources is changed as supplies are used up.

Decide which purchases you make are necessary and which are not.

Decide if you should pay cash or charge what you buy.

Find stores that have the best bargains.

Find out about the quality of what you are buying before you buy it.

Decide which item is the best buy, based on unit prices given at the store.

Establish a credit rating.

Adopted from:
Selz, N.A., Jones, J.S., and Ashley, W.L. *Functional Competencies for Adapting to The World of Work.* Columbus, OH: The Ohio State University, The National Center for Research in Vocational Education, 1979.

Borrow money in the easiest and best way, if you need to borrow.

Get a personal loan from a bank, if you need a loan.

Get a mortgage on a house.

Finance a purchase at a store or dealer (examples: a car, TV, stereo).

Have your utilities turned on or off when you need to.

Have the electric or phone company fix service if it is not working.

Have the kind of insurance coverage that is best for you.

Take good care of your belongings or property.

Have something fixed using the warranty.

Fix things when they break or tear.

Decide between selling a large possession (such as a house or car) yourself of having someone sell it for you.

Find the right person to sell something for you.

Order things you want from a catalog.

Decide between renting or buying things you may not need very often.

Rent an office or a place to live.

Recognize false advertising when you see it.

Make the right decisions about buying things that are advertised to make you want them.

Get help if you have problems with your purchases.

Get your money back if the item you bought is not well made or doesn't work well.

Be able to tell when you are not getting satisfactory service (from doctors, lawyers, mechanics, etc.).

Complain to the right person about poor service.

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Composite List of Transferable Skills

Intellectual/Aptitudinal

Communicating

Problem Solving

Analyzing/Assessing

Planning/Layout

Organizing

Decision Making

Creativity/Imagination/ Innovation

Problem Identification/ Definition

Managing One's Own Time

Basic Computation

Trouble Shooting

Mechanical Aptitude

Accounting

Self-Understanding, Awareness, Actualization

Assessing Environments/ Situations

Generalization

Goal Setting

Quantitative Thinking

Finance

Tool Usage

Business Sense

Logical Thinking

Evaluating

Ability to Relate Common Knowledge or Transfer Experiences

Coping with the Labor Market and Job Movement

Understanding Others

Synthesizing

Accommodating Multiple Demands

Judgment

Foresight

Job Awareness

Typing

Implementing

Situational Analysis

Understanding Human System Interactions

Organizational Savvy

Conceptualization

Controlling

Dealing with Work Situations

Bookkeeping

Artistic Ability

A.A. Wiant, *Transferable Skills: The employers' viewpoint* Information Series No. 126). Columbus, OH: The Ohio State University, The National Center for Research in Vocational Education, 1977.

Interpersonal

Working with, Getting along with, or Relating to Others

Managing, Directing, or Supervising

Empathizing, or Being Sensitive to Others

Teaching, Training, or Instructing

Counseling

Motivating

Gaining Acceptance, or Building Rapport

Helping, or Cooperating

Cultivating Cooperation

Selling

Accepting Supervision

Delegating

Instilling Confidence

Team Building

Attitudinal

Diligence, or a Positive Attitude toward the Value of Work

Receptivity/Flexibility/Adaptability

Determination/Perseverance

Acceptance/Appreciation/Concern for Others

Responsibility

Willingness to Learn

Ambition/Motivation

Self-Confidence

Pride

Enthusiasm

Patience

Self-Actualization

Assertiveness

Honesty

Loyalty

Reliability

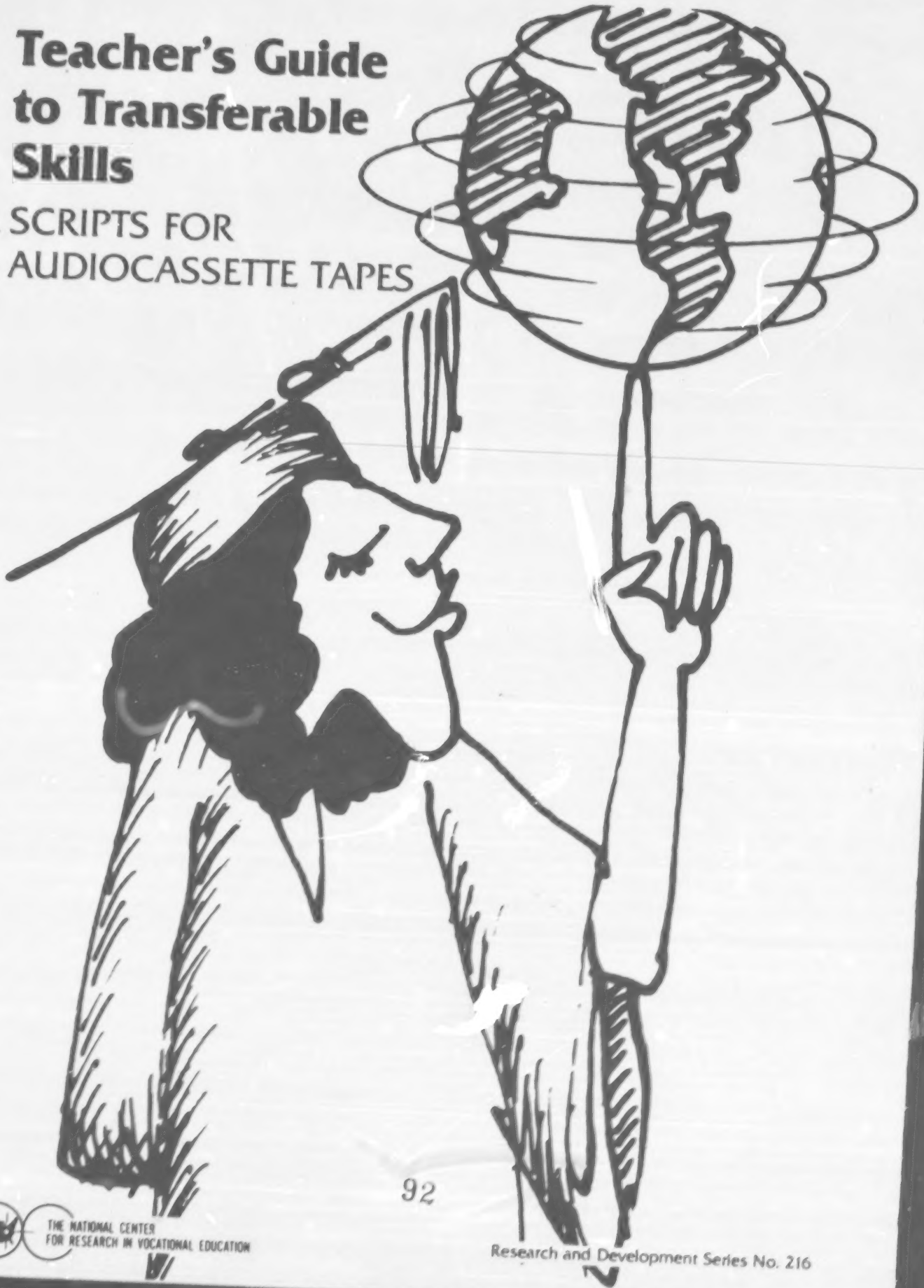
Risk Taking

Compromising

Kindness

Teacher's Guide to Transferable Skills

SCRIPTS FOR AUDIOCASSETTE TAPES



THE NATIONAL CENTER FOR RESEARCH IN VOCATIONAL EDUCATION

Research and Development Series No. 216

CHANGE

Advance the filmstrip to **Frame 1: CHANGE.** Then start the recorder.

Frame No.	*Narration*
1 . . .	Change is a big part of anyone's life.
2 . . .	One of the most likely things to change in your life is your job.
3 . . .	Not only are jobs changing –
4 . . .	– but people like you are changing their jobs, usually several times throughout a career.
5 . . .	Maybe you know what kind of a job you want.
6 . . .	Maybe you think you will stay in your occupation almost all of your life, but you probably won't.
7 . . .	Jobs change, people change, and people change jobs. Between one-quarter and one-half of the people who are working will probably change jobs within five years.
8 . . .	Changing jobs is not necessarily bad. Sometimes it is necessary in order to advance your career, for example. So, the ability to adapt, that is, being able to change, is necessary.
9 . . .	One set of job skills does not last a lifetime. People, no matter how old or young, should prepare not only for a job, but for job changes within careers and the possibility of career change.
10 . . .	You will always need to learn new skills, but you can also learn to use your old skills in new places.
11 . . .	Taking your old skills and using them in new situations is called transferring your skills.
12 . . .	All skills are potentially transferable.
13 . . .	For example, if you are already a good typist, you can proofread well, and you can correct all the errors you see.
14 . . .	Suppose you want to become an editor. You can emphasize your proofreading skills and use them in a new job.
15 . . .	Or, suppose you are very good in geometry class. You understand angles and geometric formulas and you can draw geometric forms very well.
16 . . .	You can put these school skills to work as a mechanical drafting assistant.
17 . . .	Maybe you are good at working with certain kinds of tools.
18 . . .	Perhaps you can transfer those skills to a slightly different set of tools and thereby change your job.
19 . . .	Up until now we've talked mainly about job skills, but don't forget about interpersonal skills and other skills you may have. You can transfer these too.
20 . . .	Like communication skills. Perhaps you are good at explaining things to your friends. You could put this skill to work as a writer, teacher, or as a construction supervisor.
21 . . .	Or, maybe you are good at listening to other people's problems. You might be a type of person others confide in, or perhaps you'd be a good guidance counselor, psychologist, or psychiatrist.
22 . . .	Get the picture? Don't just think about all the ways you *have* used your skills, think about how you *can* use them.
23 . . .	Practice transferring your skills. First, list some of your skills, things you do well.
24 . . .	Next to each one, write down a new way you can use that skill. Perhaps to do something you have really been wanting to try.
25 . . .	Over the next week try to do the things you've listed. Then write a summary of what happened.
26 . . .	Keep trying. Remember, change is a big part of your life. Being able to transfer your skills will help you use that change to your advantage.
27 . . .	Credits
28 . . .	The End

SPECIFICATIONS

CHANGE	Twenty-eight (28) frame 35mm filmstrip	Five (5) minute audiocassette tape
ABOUT TRANSFERABLE SKILLS	Twenty-one (21) frame 35mm filmstrip	Five (5) minute audiocassette tape
PROBLEM SOLVING	Thirty (30) frame 35mm filmstrip	Five (5) minute audiocassette tape

* Audiocassette tapes have audible tone cues to manually advance the filmstrip and inaudible signals – 1000 Hz electronic pulses – to automatically advance the filmstrip when using sound-filmstrip synchronized equipment.

ABOUT TRANSFERABLE SKILLS

Advance the filmstrip to **Frame 1: ABOUT TRANSFERABLE SKILLS.** Then start the recorder.

Frame No.	*Narration*
1 . . .	Title slide: About Transferable Skills
2 . . .	Transferable skills are skills and abilities that a person can carry from one kind of task or job to another, or from school to a job. Having many of these skills can make a person more adaptable, even more successful, in various roles or situations.
3 . . .	For instance, a person who has the very transferable skill of speaking persuasively may find that skill very useful in a variety of jobs such as sales person, counselor, public relations person, teacher, entertainer, and so on.
4 . . .	A person who is good at managing money could apply that skill as a store manager, accountant, farmer, school principal, construction superintendent, etc.
5 . . .	To transfer something like a skill or a bit of knowledge, is to take what was learned in one setting and apply it in another setting.
6 . . .	It means, for example, applying writing and listening skills learned in school to the job hunting tasks of writing for information about a position and listening to a supervisor's description of what duties and responsibilities the job involves.
7 . . .	In order to transfer a skill, first something must be learned. Of course, that is what school is all about.
8 . . .	Secondly, there must be the opportunity to apply what is learned inside and outside the classroom. You probably already apply what you learn in school when you're out of school, but think about it. Maybe you can apply even more of what you learn, not just in job and school situations, but also in family and community activities.
9 . . .	You can also transfer a basic skill in order to learn more complex skills. For example, first you may learn how to analyze the main idea of a sentence or a paragraph. Then you can use that skill to write book reports.
10 . . .	Or, you may first learn about angles and basic arithmetic and then use that knowledge to learn mechanical or architectural drafting.
11 . . .	So you see, it is important not to forget what you learn, but instead to keep building upon your knowledge and skills, and most important of all to use those skills in and out of school.
12 . . .	Why is this so important? Well, many people today think that schools are not doing their job properly. Employers say that schools give them people who cannot read or write or who do not know how to work well. Some people think that schools do not teach people how to communicate, compute numbers, interact and relate with people, etc.
13 . . .	But there may in fact be nothing wrong with what is being taught except that people are not learning how to use these skills and knowledge outside the classroom: at work, at home, and in the community.
14 . . .	You must use your skills and learn how to apply them in many situations. This is one of the reasons why teachers give homework assignments—to give you practice. That is also why you are given many different problems to solve every time you learn a new math theory or formula.
15 . . .	And of course, teachers give you tests to see if you have learned the material well enough to use it in the next course or to use it on the job. The more and better you learn, the more likely it is that you will be able to use skills later, and to use them successfully and effectively. Of course you may not always do well on tests, but then the test may reveal your weaknesses so you'll know what you need to work on.
16 . . .	You can help your teacher make school more meaningful to you. Think of all the things you need to learn in order to do the things you really want to do.
17 . . .	Or, the things you need to know to solve a problem you may be facing.
18 . . .	Your teacher can help you turn this information into goals for you to work on in school. Together you can plan individual or class activities to help you achieve your goals.
19 . . .	And whenever you are learning something, think about how you might use it later. Use your imagination. You might be surprised at how useful your skills really are.
20 . . .	Credits
21 . . .	The End

EQUIPMENT*

- 35mm filmstrip projector (manual advance) and audiocassette tape player or player/recorder
- Synchronized audiovisual 35mm filmstrip projector and audiocassette tape player or player/recorder
- Projection screen

*Consult the equipment operating manual for operating instructions.

PROBLEM SOLVING

Advance the filmstrip to **Frame 1: PROBLEM SOLVING.** Then start the recorder.

Frame No.	*Narration*
1 . . .	Problems to be solved are everywhere.
2 . . .	That is why problem solving is one of the most important skills you can have.
3 . . .	To make this skill a little easier to learn and master, you can follow a few steps that are very much like the scientific method you may have learned about in a science class.
4 . . .	Basically, the steps are understanding the problem, creating a plan, carrying out the plan, and evaluating the plan.
5 . . .	First, stop the tape and think of a problem you need to solve. Write it down and then come back to the program.
6 . . .	To understand or identify the problem, ask yourself the following questions.
7 . . .	What caused the problem?
8 . . .	Who or what is involved?
9 . . .	What have others or what have you tried to do about it?
10 . . .	What information do you know?
11 . . .	What information is unknown?
12 . . .	Where or how can you get the information?
13 . . .	What is the problem?
14 . . .	When you have identified the problem, you then create a plan of action for solving it. To do this, ask yourself –
15 . . .	What, if any, changes can be made which will solve the problem? These are called alternatives.
16 . . .	What limitations do you have? For example, you may not have enough time, money, or space for some of the alternatives.
17 . . .	What are the advantages or disadvantages of each alternative?
18 . . .	Which alternatives seem to be the best? Which are the worst? Think of best and worst in terms of how well each method will solve the problem. Also, try to think of any new problem the alternatives may create. Sometimes it helps to list each advantage and disadvantage for each alternative. If you look at the list on paper, it may be easier for you to decide which is best.
19 . . .	When you have selected the best alternative, you're almost ready to go to the next step, which is to carry out the plan.
20 . . .	But first ask yourself, what resources like time, money, materials, and people are needed? Who should do what? What help do you need? When will each part of the plan be completed?
21 . . .	After you carry out your plan, you should evaluate it by deciding how good it was. This will help you make better plans from now on. First, decide how you would know if the plan worked or not. Decide how long it should take for the plan to work.
22 . . .	When you have carried out the plan, ask yourself: Is the result acceptable, successful?
23 . . .	Is more improvement needed?
24 . . .	Should you continue the plan?
25 . . .	Did the plan cause any new problems you did not expect?
26 . . .	Should you make a new plan because of new information?
27 . . .	Try these steps out on a problem you have selected or some activities your teacher may give you. Review this practice when you need to. Practice using these steps again and again. Soon you'll do it without thinking.
28 . . .	Perhaps you already do.
29 . . .	Credits
30 . . .	The End